SARASVATI

Language

Volume 6



Dr. S. Kalyanaraman

Babasaheb (Umakanta Keshav) Apte Smarak Samiti

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About the Author



Dr. S. Kalyanaraman has a Ph.D. in Public Administration from the University of the Philippines; his graduate degree from Annamalai University was in Statistics and Economics. His PhD dissertation was on development administration, a comparative study of 6 Asian countries, published as *Public Administration in Asia* in 2 volumes.

He was a Senior Executive in the Asian Development Bank, Manila, Philippines for 18 years from 1978 to 1995 responsible for the world-wide IT network of the Bank and disbursements on a portfolio of US$60 million for over 600 projects in 29 developing countries of Asia-Pacific region. Prior to joining the Bank, he was Financial Advisor on the Indian Railways (responsible, as part of a professional team, for introducing computers on the Railways) and Chief Controller of Accounts, Karnataka Electricity Board. He took voluntary retirement from the Bank five years' ahead of schedule and returned to Bharat to devote himself to Sarasvati River researches and development projects.

He is well-versed in many languages of Bharat: Tamil, Telugu, Kannada, Hindi, Sanskrit. He has compiled a comparative dictionary for 25 ancient Indian languages, titled *Indian Lexicon*. He has set up a website on Sarasvati River and Civilization with over 30,000 files (http://www.hindunet.org/saraswati); he is the founder of the yahoogroup, IndianCivilization, which has over 800 members (April 2003). His work, *Sarasvati*, was published in 2001 a compendium on the discovery of Vedic River Sarasvati. The present 7-volume enyclopaedic work on *Sarasvati Civilization* is a result of over 20 years of study and research. He is Director, Sarasvati Nadi Shodh Prakalp, Akhil Bharatiya Itihaasa Sankalana Yojana, Chennai 600015. The Prakalp is engaged in researches related to Sarasvati Civilization and interlinking of national rivers of Bharat. He has contributed to many scholarly journals and participated in and made presentations in a number of national and international conferences including the World Sanskrit Conference held in Bangalore in 1995. He delivered the Keynote address in the International Conference of World Association of Vedic Studies, 3rd Conference held in University of Massachusetts, Dartmouth, in July 2002. kalyan97@yahoo.com

Diacritical marks used

The Kyoto-Harvard convention is NOT used since the intermingling of English words with Indian language words wll distort the representation of capital letters and is not easy to read.

The standard diacritical marks are deployed but, instead of ligaturing them on top and bottom of the alphabet, the diacritical marks FOLLOW immediately after the vowel or consonant which is modified. For e.g., a_ connotes 'long a', n. connotes retroflex N. After the UNICODE is standardized, the next edition will display the modified codes for ease of representation on web pages on the internet.

a r*u*t,*a*t	e b*e*t	d *th*en
a_/ l*aw*	e_ *a*te	d. *d*ot
a~_ l*ong*	e~_ b*an*e	l. riva*lr*y
/a~ *un-*	/e~ wh*en*,*whey*	n. a*n*d
i it	o *o*bese	n- *n*ew
i_ b*ee*	o_ n*o*te	r- cu*rl*
i~_ b*een*	o~_ b*one*,*one*	r. *r*ug
/i~ *in*	m. mu*m*	r.. (*zsh*)
u y*ou*	n: ki*ng*	s fu*s*e
u_/ *oo*ze	*n*~ *ny*et	s. *sh*ut
u~_ b*oon*	h-/k- w*h*at	s' *s*ugar
/u~ j*un*e	c *ch*ange	t bo*th*
…	c. *s*o	t. *t*oo

List of languages and abbreviations

The languages of the linguistic area and the abbreviations used are as follows:

A.Assamese
Ap.Apabhram.s'a
Ash. Ashkun (As.ku~_--Kafiri)
Aw. Awadhi_
B. Bengali (Ban:gla_)
Bal. Balu_ci_ (Iranian)
Bashg. Bashgali_ (Kafiri)
BCE Before Common Era (BC)
Bel. Belari
Bhoj. Bhojpuri_
Bi. Biha_ri_
Br. Bra_hui_
Brj. Brajbha_s.a_
Bshk. Bashkari_k (Dardic)
Bur.Burushaski
CE Common Era (AD)
Chil. Chili_s (Dardic)
D.. D.uma_ki
Dm. Dame~d.i_ (Kafiri-Dardic)
G. Gujara_ti_
Ga. Gadba
Garh.Gar.hwa_li_
Gau. Gauro (Dardic)
Gaw.Gawar-Bati (Dardic)
Gmb. Gambi_ri_ (Kafiri)
Go. Gondi
Gy. Gypsy or Romani
H. Hindi_
Ir. Irul.a
K. Ka_s'mi_ri_
Ka. Kannad.a
Kaf. Kafiri
Kal. Kalasha (Dardic)
Kand. Kandia (Dardic)
Kat.. Kat.a_rqala_ (Dardic)
Kho. Khowa_r (Dardic)
Khot. Khotanese (Iranian)
Kmd. Ka_mdeshi (Kafiri)
Ko. Kota
Kod.. Kod.agu (Coorg)
Koh. Kohista_ni_ (Dardic)
Kol. Kolami
Kon. Kon:kan.i_
Kond.a
Kor. Koraga
Kt. Kati or Katei (Kafiri)
Ku. Kumauni_
Kui
Kurub.Bet.t.a Kuruba
Kur.Kur.ux (Oraon, Kuru*kh*)
Kuwi
L. Lahnda_
M. Mara_t.hi_
Ma.Malayalam
Mai.Maiya~_ (Dardic)
Malt.Malto
Ma_lw.Ma_lwa_i_
Mand.. Mand.a
Marw.Ma_rwa_r.i_
Md.Maldivian dialect of Sinhalese
MIA Middle Indo-Aryan
Mj. Munji_ (Iranian)
Mth. Maithili_
Mu. Mun.d.a_ri (Munda)
N. Nepa_li
Nahali
Nin:g. Nin:gala_mi (Dardic)
Nk. Naikr.i (dialect of Kolami = LSI, Bhili of Basim; Naiki of Chanda)
OIA Old Indo-Aryan
Or. Or.iya_
P. Punja_bi_ (Paja_bi_)
Pa. Parji
Pali
Pah. Paha_r.i_
Pa_Ku. Pa_lu Kur-umba
Pas'. Pas'ai (Dardic)
Pe. Pengo
Phal. Phalu_r.a (Dardic)
Pkt. Prakrit
S. Sindhi_
Sant. Santa_li_ (Mun.d.a_)
Sh. Shina (S.in.a_.Dardic)
Si. Sinhalese
Sik. Sikalga_ri_ (Mixed Gypsy Language: LSI xi 167)
Skt. Sanskrit
Sv. Savi (Dardic)
Ta.Tamil
Te.Telugu
Tir.Tira_hi_ (Dardic)
To. Toda
Tor.To_rwa_li_ (Dardic)
Tu. Tulu
U. Urdu
Werch.Werchikwa_r or Wershikwa_r (Yasin dialect of Burushaski)
Wg. Waigali_ or Wai-ala_ (Kafiri)
Wkh. Wakhi (Iranian)
Wot..Wot.apu_ri_ (language of Wot.apu_r and Kat.a_rqala_. Dardic)
WPah. West Paha_r.i

Abbreviations used for linguistic categories and other languages Languages, Epigraphs

As'. As'okan inscriptions
Austro-as. Austro-asiatic (cf. Munda)
BHSkt. Buddhist Hybrid Sanskrit (Franklin Edgerton, Buddhist Hybrid Sanskrit Grammar and Dictionary, Newhaven, 1953)
Dard. Dardic
Dhp. Ga_ndha_ri or Northwest Prakrit (as recorded in the Dharmapada ed. J. Brough, Oxford 1962)
Drav. Dravidian
IA. Indo-aryan
IE. Indo-european
Ind. Indo-aryan of India proper excluding Kafiri and Dardic (as classified by R.L. Turner)
KharI. Kharos.t.hi_ inscriptions; Middle Indo-aryan forms occurring in Corpus Inscriptionum Indicarum Vol. II Pt.I, Calcutta, 1929 MIA Middle Indo-aryan
NiDoc. Language of 'Kharos.t.hi_ Inscriptions discovered by Sir Aurel Stein in Chinese Turkestan' edited by A.M. Boyer, E.J. Rapson, and E. Senart
Ar.Arabic
Aram.Aramaic
Arm.Armenian
Av. Avestan (Iranian)
E. English
Gk. Greek
Goth. Gothic
Ishk. Ishka_shmi_ (Iranian)
Kurd. Kurdish (Iranian)
Lat. Latin
Lith.Lithuanian
OHG. Old High German
Orm. O_rmur.i_ (Iranian)
OSlav. Old Slavonic
Par. Para_ci_ (Iranian)
Pahl. Pahlavi (Iranian)
Pers. Persian (Iranian)
Port. Portuguese
Pr. Prasun (Kafiri)
Psht. Pashto (Iranian)
Tib. Tibetan
Toch. Tocharian
Turk. Turkish
Yid. Yidgha (Iranian)

Abbreviations : Grammatical

* hypothetical
< (is) derived from
> (has) become
? doubtful
Xinfluenced by
+ extended by
~ parallel with
acc.accusative
adj. adjective
adv. adverb
aor. aorist
caus. causative
cent. century
cf. confer (compare)
cmpd.compound(ed)
com. commentary, t.i_ka_
conj.conjunction
dat. dative
dist.fr.distinct from
du. dual
E East
e.g. example etym. etymology
expr.expression
f./fem. feminine
fig. figuratively

fr. from
fut. future
gen. genitive
hon. honorific
id. idem (having the same meaning)
imper.imperative
incl. including
inf.infinitive
inj.injunctive
inscr.inscription
lex. lexicographical works or Kos'as
lit. literature
loc. locative
m. masculine
M Middle
metath. metathesis (of)
N North
Na_ Na_ci Na_t.u usage
Naut. Nautical
nom.nominative
nom.prop. nomen proprium (proper name)
num.numeral(s)
NWNorth-west
O Old
obl. oblique case
onom.onomatopoeic
p. page
part. participle
pass. passive
perf. perfect
perh. perhaps
phonet.phonetically
pl. plural
pp. past participle (passive)
pres. present
pron. pronoun
Pudu. Pudukkottai usage
redup. reduplicated
ref. reference(s)
S South
sb./subst.substantive
semant. semantically
st. stem
subj. subjunctive
syn. synonym
Tinn. Tinnevelly usage
Tj. Tanjore usage
usu. usual(ly)
vais.n..vais.n.ava usage
vb. verb
viz. videlicet (namely)
W West

Foreword

I had written a foreword for Dr. Kalyanaraman's work titled *Sarasvati* in 2000. As promised, he has now followed up this work with an additional seven volumes to complete the encyclopaedia on Sarasvati – the river, godess and civilization of Bha_rata.

It is a privilege indeed to receive the seven volumes titled:

1. ***Sarasvati: Civilization***
2. ***Sarasvati: R.gveda***
3. ***Sarasvati: River***
4. ***Sarasvati: Bharati***
5. ***Sarasvati: Technology***
6. ***Sarasvati: Language***

Sarasvati: Epigraphs

This septet constitutes a fitting homage to Babasaheb (Uma_ka_nt kes'av) Apte, particularly in the wake of the centenary celebrations planned for 2003 in memory of this patriot who wanted a presentation of the history of Bha_rata from a Bha_rati_ya socio-cultural perspective.

The dream of the late Padmashri Vakankar, archaeologist is also partly fulfilled with the delineation of the peoples' lives over 5,000 years on the banks of the Rivers Sarasvati and Sindhu.

The Sarasvati Nadi Shodh Prakalp which is headed by Dr. Kalyanaraman under the guidance of Shri Haribhau Vaze, All-India Organizing Secretary, Akhila Bharateeya Itihaasa Sankalana Yojana should be complimented for bringing to successful completion this important phase of writing of the history of ancient Bha_rata.

The River Sarasvati has not only been established as ground-truth (bhu_mi satyam), but the vibrant civilization which was nurtured on the banks of this river has been exquisitely unraveled in the five volumes, covering virtually all aspects of the lives of the pitr.-s, many of whose a_s'rama-s are venerated even today in many parts of Bha_rata.

The seven volumes provide a framework for understanding the writing system evolved ca. 5,300 years ago to record the possessions and items traded by metal- and fire-workers, the bharata-s. The language spoken by the people is also becoming clearer, with the existence of a linguistic area on the banks of the two rivers – the substrata and ad-strata lexemes which seem to match the glyphs of inscribed objects are a testimony to this discovery. This calls for a paradigm shift in the study of languages of Bha_rata with particular reference to the essential semantic unity of all the language families,

thanks to intense socio-economic and cultural interactions across the length and breadth of Bha_rata.

Hopefully, this work should generate many more research studies of this kind to further study the impact of the civilization on the cultural unity of the nation.

It is also heartening to note that work has started to revive the Rivr Sarasvati and to interlink the rivers of the country. This will be a garland presented by the children of the country to Bha_rata Ma_ta_ setting up a network of about 40,000 kms. Of National Waterways which will complement the Railways system to further strengthen the infrastructure facilities and to provide a fillip to development projects in all sectors of the economy.

I understand that Kalyanaraman is now embarking on a project to write the history of Dharma. I wish him all success in his endeavours.

M.N. Pingley

Kaliyugabda 5105. a_s.a_d.ha, Gurupurnima. July 13, 2003 CE

Publisher's Note

On behalf of Baba Saheb (Umakanta Keshav) Apte Smarak Samiti, it gives me great pleasure to publish the set of seven volumes of the encyclopaedic work of Dr. S. Kalyanaraman with over 4,000 illustrations and impressive documentation.

7. ***Sarasvati: Civilization***
8. ***Sarasvati: R.gveda***
9. ***Sarasvati: River***
10. ***Sarasvati: Bharati***
11. ***Sarasvati: Technology***
12. ***Sarasvati: Language***

Sarasvati: Epigraphs

This is a follow-up of the first work titled *Sarasvati* published in 2000 which focused on the River Sarasvati. These seven additional volumes focus on the language, writing system, technology – archaeo-metallurgy, in particular, the lives of the people who lived between 3500 to 5300 years ago and the importance of this legacy and heritage on the history of Bha_rata.

This compendium has been made possible by the contributions made by scientists and scholars of the country from a variety of disciplines, ranging from geology and glaciology to atomic research and language studies. This comprehensive work on Sarasvati thus constitutes a golden chapter in the work of the Akhila Bharateeya Itihaasa Sankalana Yojana, providing the foundation for future works on subsequent periods of the history of the nation.

A principal objective of the Baba Saheb (Umakanta Keshav) Apte Smarak Samiti is the authenticated study of the history of our nation. For this purpose the Akhila Bharatiya Itihaasa Sankalana Yojana affiliated with the Samiti, has been working with a number of scholars and institutions organizing seminars and conferences and bringing out publications. The Samiti is a non-profit, voluntary organization and is entirely supported by volunteers and philanthropists. I wish to thank all the well-wishers and contributors to the Samiti's work. In particular, I would like to acknowledge with gratitude the contribution made by Shri G. Pulla Reddy, Shri Ramadas Kamath, and Basudeo Ramsisaria Charitable Trust, ICICI, Government of Goa, in enabling this publication. Sincere thanks are due to K. Joshi and Co., and Dr. C.N. Parchure who have undertaken the supervision of the publication.

Plans have been initiated to start a national center to study the history of vanava_si people, to produce an encyclopaedia on the Hindu World and to organize research centers in all states of the country, to publish a series of research volumes on various aspects of the Bharatiya itiha_sa in all languages of Bharat, using multimedia presentations.

Haribhau Vaze
National Organizing Secretary, Akhil Bharatiya Itihaasa Sankalana Yojana and Trustee, Baba Saheb (Umakanta Keshav) Apte Smarak Samiti, Bangalore. Kaliyugabda 5105. a_s.a_d.ha, Gurupurnima. July 13, 2003 CE

Author's Preface

At the outset, I offer my sincere thanks to Moropant Pingley and Haribhau Vaze for their encouragement and support in pursuing this endeavour.

What can I say which has not already been said by eminent scientists, scholars and thinkers of this great nation? All that I can do is to compile their thoughts and present them as I see fit and as a tribute to the memories of our pitr.-s and ma_tr.-s, our ancestors who have made us what we are and who have given us the *vira_sat* (heritage).

The septet contains the following volumes:

13. Sarasvati: Civilization
14. Sarasvati: R.gveda
15. Sarasvati: River
16. Sarasvati: Bharati
17. Sarasvati: Technology
18. Sarasvati: Language
Sarasvati: Epigraphs

The enduring nature of the culture of the nation has been a source of awe and inspiration for many generations of scholars.

The lives of the r.s.i-s and muni-s who contributed to the solidity of the Bha_rata Ra_s.t.ra is a source of inspiration for generations of students of philosophy, politics, sociology, spiritual studies, economics and culture.

The earlier work, *Sarasvati*, published in 2000 focused on the life-history of River Sarasvati. This set of seven volumes follow-up on this work to present a comprehensive survey of the lives of the people who nurtured a vibrant civilization on the banks of River Sarasvati. They were enterprising people who ventured to the banks of River Sindhu and beyond and had established a network of interactions which extended as far as Mesopotamia in the west and Caspian Sea in the north-west.

The River Sarasvati, flowing over 1,600 kms. from Mt. Kailas (Ma_nasarovar glacier) and tributaries emanating from Har-ki-dun (Svarga_rohin.i or Bandarpunch massifs, Western Garhwal, Uttaranchal), through Kashmir, Uttaranchal, Himachal Pradesh, Punjab, Haryana, Rajasthan, and Gujarat made the region lush with vegetation and provided a highway for interactions extending through the Gulf of Kutch, Gulf of Khambat, the Persian and Arabian Gulfs. The story of this riverine, maritime civilization is the story of an enterprising group of people who were wonderstruck by the bounties of nature and had organized themselves into a cooperating society to

harness the bounties of nature. The Samudra manthanam imagery wherein the asura-s and deva-s cooperate in churning the ocean for its riches is an allegory of this quest for material well-being while strengthening societal bonds.

This march of history is a saga of adventure, a passion for discovery of new materials and new methods of communication using a writing system and communicating orally profound thoughts on the cosmic order in relation to humanity.

The next stop is Dharma: a history of Bharatiya Ethos and Thought.

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Kaliyugabda 5105. a_s.a_d.ha, Gurupurnima. July 13, 2003 CE

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Lingua Franca

Cracking the language code and delineating the parole of a civilization

The code of the writing system on epigraphs of Sarasvati Civilization has been cracked by simply listing lexemes used by braziers all over Bharat and identifying homonyms concordant with the glyphs on epigraphs.

Since the hieroglyphs can now be read and the underlying semantics understood, the language of the civilization, during the early stages of the Bronze Age (c. 4th millennium BCE), can be emphatically outlined . Over 2,000 lexemes of this language constitute the substratum, the *parole* or *lingua franca* (spoken language), which has enriched the lexemic repertoire of almost all dialects of Bharat – Munda, Dravidian and Indo-Aryan.

The language is **mleccha** and the writing system is **mlecchita vikalpa** (cypher writing) or writing in hieroglyphs. **Mleccha** was the language in which Vidura and Yudhis.t.hira conversed, as stated in the *Maha_bha_rata*.

A paradigm change has occurred in our understanding of the linguistic area of the civilization. Almost all languages of Bharat can be declared as a dialectical continuum, a continuity which can be traced from Vedic times to the present-day, thus establishing the essential semantic unity of all Bharatiya languages. This unity has been sustained for over 5 millennia over an extensive interaction area which the people of the civilization nurtured from the banks of River Sarasvati..

Nobody ever notices a postman, somehow

"One of GK Chesterton's *Father Brown* detective stories is about a postman who walked into a block of flats, murdered one of the residents, and carried out the corpse in his sack without so much as rousing the suspicion of the commissionaire who stood on duty. 'Nobody ever notices postmen, somehow,' said Father Brown, and he echoed the paradox that Chesterton repeatedly expounded: the most familiar things can go by most easily unnoticed. Indeed, the paradox itself has now become sufficiently self evident to be regarded rather as a truism. We have become so familiar with the modern use of metals that we tend to accept it – like Father Brown's postman – fairly thoughtlessly….

"The ornaments and weapons found during the excavations at Ur imply that the casting of metal had begun about 3500 BCE. And it seems that in this locality there was an interval of about 2000 years between the first crudely hammered metal article and the earliest cast one. Remains of primitive copper workings have been found at the sites of other early civilizations – in the Nile valley in Egypt; and at Mohenjo-daro, which appears to have been the center of an early Indian culture at Sind." [**J. Gordon Parr,** 1958, *Man, metals and Modern magic*, Iowa, Cleveland, American Society of Metals, pp.1-13].



Sumerian copper statue of a man carrying a brick (copper ingot or bronze casting), c. 2600 BCE. Metropolitan Museum of Art.

It is just possible that the language of the people of Sarasvati civilization was not a lot different from the languages in vogue today in Bharat.

Like the postman in *Father Brown*, the linguistic area of Bharat, circa 5500 years Before Present, has gone unnoticed simply because it is all around us, as a dialectical continuum stretching from Kanyakumari to Kashmir, from Dholavira to Dacca. The prehistory of the civilization is also all around us emphasizing the cultural continuity for over 5500 years to

the present day.

Our pitr. postmen have delivered the messages in emphatic glyphs constituting over 3,000 epigraphs anchored on lexemes of the linguistic area of the civilization.

The substratum language was **mleccha**! We had somehow not noticed the postmen for the last 150 years, ever since the first seal was discovered close to the banks of River Sarasvati.

It is possible to identify both the **mleccha** messenger and the **mleccha** message.

Old Indic or Proto-Bharatiya *Lingua Franca* or *parole* (spoken tongue)

There are hundreds of lexical isolates attested in 'Indo-Aryan' which are not found in other branches of Indo-European. These are clearly a substratum layer of Old Indic which was spoken by the people of Bharat on the Sarasvati-Sindhu river basins and on the coastal settlements of Sindhu sa_gara (Arabian Sea). Some of these people were called Meluhhan in Mesopotamian texts. The Austroasiatic components of this substratum have to be resolved further in the context of (1) ancestors of Brahui and Elamite; and (2) other Austroasiatic groups such as those in the Brahmaputra (Lohitya)-Meghna-Barak river basins and around the Bay of Bengal.

The lingua franca (or parole, spoken tongue) of Bharat circa 5000 years ago is hypothesized as a continuum of dialects, evolving in tandem with the cultural setting and technological innovations. Since the civilization which emerged on and was nurtured on the banks of Rivers Sarasvati and Sindhu continues into the historical periods in Bharat, the language spoken circa 5000 years Before Present can be reconstructed from the languages of present-day Bharat and based on the lexical work done by philologists from the days of Yaska (circa 6th century BCE) upto the discovery of Bangani in the 20th century.

Linguistic area of Bharat, circa 5500 years Before Present

A tool exists to configure the glosses of the ancient dialects of Bharat, circa 3000 BCE. The present-day languages of Bharat are genetically related to these dialects and hence the lexemes of the present-day Bharatiya languages provide the semantic, structural framework for reconstructing the ancient mleccha language which was in vogue on the Sarasvati and Sindhu River Basins and in all the regions of the civilization, circa 5,500 to 3,500 years Before Present.

Comparative dictionary of Bharatiya languages

An *Indian Lexicon* has been compiled as a comparative study of lexemes of over 25 ancient languages of Bharat (which may also be referred to, in a geographical/historical phrase, as the linguistic area of Bharat).

This compendium of glosses (organized in over 8000 semantic clusters), is a first step in reconstructing the Bharatiya language(s) circa 5000 years Before Present. *http://www.hindunet.org/saraswati/dictionary/*

These lexemes provide a semantic structure which unify almost all the languages o Bharat into a proto-bharatiya substratum to explain the glosses of many dialects: Munda, Dravidian and Indo-Aryan. These lexemes help code the hieroglyphs contained in epigraphs of Sarasvati Civilization.

Writing originated about 3300 BCE at Harappa on the left bank of River Ravi and about 3100 BCE, at the end of the Uruk period in Mesopotamia, in order to keep track of people and goods. Unlike the writing system of Mesopotamia which evolved in cities, the writing system of SSVC was widespread and reached out into even very small settlements. In the early-to-middle third millennium BCE, the texts record organization of daily activities, especially in temple estates; royal inscriptions reveal the battles fought over the best arable land and securing access to trade routes. In early second millennium, texts relate to private sale of land and movable property and inheritance.

Over 3000 epigraphs exemplifying the writing system of of the Indian (Sarasvati) civilization, ca. 5500 years Before Present, will be decoded using the lexemes, mainly of Bharatiya languages, based on the fundamental assumption that the language spoken by the people of the civilization continued in Bharat and evolved as a dialectical continuum from a linguistic area in the Sarasvati and Sindhu river basins and along the coastline of Sindhu sa_gara or Arabian sea.

Some observations on general semantics and the Indian Linguistic Area

The civilization sites in Punjab, Rajasthan, Cholistan, Kutch and Saura_s.t.ra can be explained by the Sarasvati river as a navigable channel right from Ropar to Lothal (and beyond upto Prabha_s Patan or Somnath), upto ca. 2500 B.C. The existence of this highway and links through the Persian Gulf and the coastline of Sindhu sa_gara (Arabian Sea) may explain the spectrum of languages covered by the linguistic area which had existed around 5,000 years ago.

The evolution of the Pràkrits and dialectical sequences of changes in the region, governed by regional migrations of populations due to the desiccation of the Sarasvati river, ca. 1700-1300 B.C., will require further linguistic analytical work. For this purpose, extensive lexical and other language tasks based on epigraphical,

textual and cultural evidences have to continue, following on the leads provided in the *Indian Lexicon.* Thus, the *Indian Lexicon* is only a small step to further understand the formation of Indian languages.

Further work is necessary to identify lexemes of the substrate language used in cuneiform inscriptions of Mesopotamia, in the context of the re-interpretation of pictorials on cylinder seals with vivid motifs similar to those found in the Sarasvati-Sindhu civilization area.

Any language with a large number of speakers develops dialects. The major geographical barriers (apart from the Himalayas) separating groups of people in India are: the marusthali_ (Great Indian desert), the Suleiman ranges, the Brahmaputra and the Vindhya mountain ranges. The major geographical feature which overcomes these barriers is that the waters close to the long coastline of the peninsula, Arabian sea on the west and Bay of Bengal on the east, were navigable on a **bagala** or a **san:gad.a**. This explains the possibility noted by John Marshall that electrum from Kolar could have been used by the artisans of Mohenjodaro.

Two dialects predominated as the standard form of language in Northern, Western and Eastern India: they emerges as **Prakrit** and **Pali** in the historical periods.

The distinction between 'dialect' and 'language' is resolved viewing dialects as subdivisions of languages. It is a well-known fact that Mandarin, Cantonese and Pekingese differ in their spoken forms but share the same written language, thus making the former dialects of Chinese. Similarly, the so-called Indo-Aryan, Dravidian and Munda are viewed as subdivisions of a proto-Indian **parole**. (The concrete utterances produced by individual speakers of the speech community are related in the exercise of cracking the code of the writing system of the epigraphs of the civilization, treating all the examples provided by Indian lexemes in the *Indian Lexicon*, as merely dialectial variants.)

Writing systems are attributes of complex societies

The early Mesopotamian writing system was a form of book-keeping. (Coe, M.D., 1992, *Breaking the Maya code*, New York, Thames and Hudson: 41); Sumerian writing was used for administrative purposes. (Sampson, G., 1985, *Writing Systems: A linguistic introduction*, Stanford University Press: 48).

The writing system of Sarasvati Civilization, evidenced by about 4000 inscriptions on a variety of writing surfaces (seals, faience/steatite tablets, copper tablets, silver seals, bangles, bronze-age weapons and tools, potsherds) functioned with the writer and the reader sharing the same repertoire. The symbols used in the writing system are remarkable ligatures; many symbols are clearly logographic, i.e. each logograph corresponds to a word (lexeme). (Logographs are also often considered as synonyms of pictograms or pictographs or ideograms or ideographs or logograms). (See Boltz, W., 1986, Early Chinese writing, *World Archaeology*, 17/iii : 424). As logograhs evolve, they are given phonetic and semantic indicators/supplements/determinatives (Boltz's phase 3). The nature of ligaturing of logographs is so specific, yet varied, that they cannot be interpreted as identity symbols or totems. (See Matthews, R.J., 1993, *Cities, seals and writing: archaic seal impressions from Jemdet Nasr and Ur*, Berlin: Gebr. Mann Verlag; Coe, 1992 (opcit.): 177-8). Just as the Mesopotamian cuneiform evolved primarily as a logographic system, in which each symbol represented a complete word or idea, the system of logographs used in epigraphs of the civilization re also hypothesised to represent lexemes.

It is hypothesized in the context of ancient India that the people of India of many regions understood each other, but the stylized variations in their grammatical structures of the so-called Dravidian and the so-called Mundarica subdivisions perceived by ancient linguists such as Pa_n.ini and Tolka_ppiyan-, resulted in their being referred to as different languages. If a dialect atlas were to be compiled for India of ca. 3000 B.C., the bronze-age artefacts stand out as major semantic fields. Almost all the categories of weapons as *distinctive items* emerge as belonging to one Indian Linguistic Area. The same situation is apparent in other categories such as parts of the body, flora and fauna, echo words and classifier words such as those used to count cattle or count flat or round objects. Social or class dialects are also discernible in the categories of rituals and alchemical techniques ranging from Na_t.a siddhas of Rajasthan to the siddhas of Tamilnadu.

Dha_tupa_t.ha is an example of the linguistic analysis directed to the definition of *semes* (or the minimal distinctive semantic features) in prakrits enabling the construction of grammatical rules (cf. Pa_n.ini and Tolka_ppiyan-) and the formation of Sanskrit, as a refinement and standardization of geographical dialects.

The study of meaning in the Indian Linguistic Area as brought out in the *Indian Lexicon* entries relates the lexemes with the phenomena generated by the use of a variety of minerals, advances in metallurgy, alchemy and use of gum-resins and fragrances and use of herbals as medicines. These are semantic fields in which lexemes inter-relate and define each other in a number of ways. In this exercise in general semantics, 'semantic meaning' is here is used in contradistinction to 'grammatical meaning'. This is but a first step in defining semantic features of lexical items of ancient India. Further advances are necessary to analyse sentences (particularly in epigraphs), yielding semantic representations (See Bhartrhari's notes on philosophical semantics: va_kya padi_ya and sphot.a).

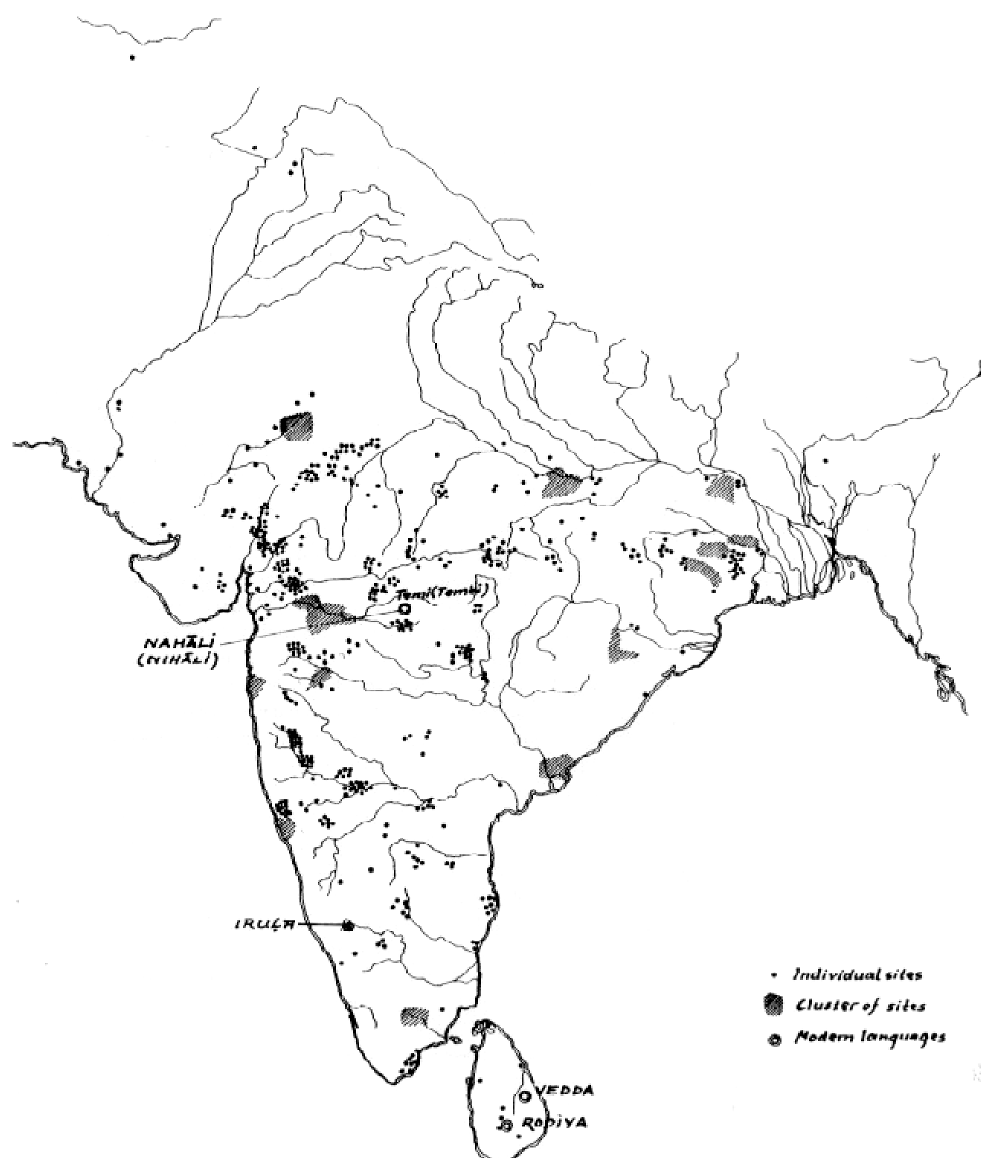
Using the resources of *Indian Lexicon*

The *Indian Lexicon*, which presents over 8000 semantic clusters, contains over half-a-million comparative lexemes from Indian languages. The *Indian Lexicon* unites about 4,000 so-called Dravidian etyma with many etyma of the so-called Indo-Aryan and Munda tongues.

The lexicon is a comprehensive exercise in general semantics. Lexemes with concordant phonemes are clustered together within a head-word sememe, without postulating any a priori assumptions about the ancestry of the phonemic version of the sememe (defined as the 'morpheme-meaning-root element').

The comprehensive exercise with lexical evidence from an ancient linguistic area of the world, tests and establishes the validity of the following core neuro-linguistic hypothesis: semantic competence is the substratum in philogeny; grammar is only a surface layer in the neural networks.

The ancient version of the spoken language of the Sarasvati-Sindhu civilization, ca. 3000 to 1300 B.C., can be traced as Proto-Prakrits/Proto-Pali or sub- or ad-stratum languages, such as Nahali, which are phonetically modified and embodied in the spoken versions of the current-day languages of India.



Microlithic sites in India and neighbouring regions and the areas of the substrate languages of Naha_li, Irul.a, Vedda and Rodiya (After Schwartzberg, Joseph, ed.,1978, A historical atlas of South Asia, Chicago; loc. cit., Parpola, 1994, Fig. 8.9) It is likely that many lexemes of the Pra_kr.ts were derived from the hundreds of such languages which should have constituted the substratum of the Linguistic Area in Indic protohistory.

The ancient version of the spoken language can be traced from the spoken versions of the current-day languages of India.

The lexemes are intended to be *tagged* to the images (pictorial signs and pictorial field symbols) of the Harappan (or Sarasvati-Sindhu) script.

Selection of words in this compendium is based on the following objective criteria/underlying hypotheses:

19. The words should be lexemes of the languages spoken in the geographical region bounded by the Indian ocean on the south and the mountain ranges which insulate it from other regions of the Asian continent on the north, east and west. Thus all Dardic languages, Sinhalese, Maldivian dialect of Sinhalese, and Urdu are included; Pashto is excluded. Wherever possible, Vedic, Munda, Prakrit and Pali lexemes have been included. As found necessary, cross-references to Arabic and Iranian dialects have been provided.
20. The words should have homonyms proximate to the pictorials of the inscriptions of the civilization.

The organization of the lexemes of the languages is NOT in alphabetical or areal (i.e. geographical) sequencing. The lexemes are clustered under a head-word which constitutes the core sememe.

This lexicon seeks to establish a semantic concordance, across the languages or **numraire facile** of the Indian linguistic area: from Brahui to Santali to Bengali, from Kashmiri to Mundarica to Sinhalese, from Marathi to Hindi to Nepali, from Sindhi or Punjabi or Urdu to Tamil. A semantic structure binds the languages of India, which may have diverged morphologically or phonologically as evidenced in the oral tradition of Vedic texts, or epigraphy, literary works or lexicons of the historical periods. This lexicon, therefore, goes beyond, the commonly held belief of an Indo-European language and is anchored on proto-Indian sememes. The work covers over 8,000 semantic clusters which span and bind the Indian languages. The basic finding is that thousands of terms of the Vedas, the Munda languages (e.g., Santali, Mundarica, Sora), the so-called Dravidian languages and the so-called Indo-Aryan languages have common roots. This belies the received wisdom of cleavage between, for example, the Dravidian or Munda and the Aryan languages. The lexicon seeks to establish an areal 'Indian' language type, by establishing semantic concordance among the so-called Indo-Aryan, Dravidian and Munda languages. The area spanned is a geographical region bounded by the Indian ocean on the south and the mountain ranges which insulate it from other regions of the Asian continent on the north, east and west. This lexicon is a tribute to the brilliant work done by etymologists and scholars of Indian linguistics, and to a number of scholars who have contributed to unravelling the enigma of the Indus (Sarasvati-Sindhu) Script and to the study of ancient Indian science and technology.

The author believes that the work authenticates the unifying elements of Bharatiya common cultural heritage. The author also realizes that language is extraordinarily fluid, recording changes over time and reconstruction of lexemes of the past is subject to a variety of possible interpretations. Language is also a philosophical problem *par excellence*.

The cultural facets demonstrated by this comparative lexicon of languages currently spoken by over a billion people of the world can be emphasized at a number of levels:

(1) to bring us closer to the ancient heritage of a Bharatiya language family of which the extant Indian languages (Indo-Aryan, Dravidian and Munda language streams) are but dialectical forms;

(2) to generate further studies in the disciplines of (i) Bharatiya archaeology, (ii) general semantics and comparative linguistics; (iii) design of fifth-generation computer systems; and

(3) to provide a basis for further studies in grammatical philosophy and neurosciences on the formation of semantic patterns or structures in the human brain -- neurosciences related to the study of linguistic competence which seems to set apart the humans from other living beings.

The warrant for this lexicon is the difficulty faced by scholars in collating different lexicons and in obtaining classical works such as CDIAL (*A Comparative Dictionary of Indo-Aryan Languages*) even in eminent libraries.

In tracing the etyma (lit. truth in Greek) of the Indian languages, it is adequate to indicate the word forms which can be traced into the mists of history.

Hypotheses on Proto-Bharatiya vocabulary

The following hypotheses govern the semantic clustering attempted in this lexicon.

21. It is possible to re-construct a proto-Indian idiom or *lingua franca* of circa the centuries traversed by the Sarasvati-Sindhu doab civilization (c. 2500 to 1700 BCE).
22. India is a linguistic area nurtured in the cradle of the Sarasvati-Sindhu doab civilization.

The hypotheses reject two earlier linguistic assertions: (i) Sir William Jones's assertion in 1786 of an Indo-European linguistic family and (ii) Francis Whyte Ellis's assertion in 1816 of a southern Indian family of languages.

These two assertions have resulted in two comparative or etymological lexicons of the so-called 'Indo-Aryan' and 'Dravidian' languages. This cleavage between the two language families is rejected. The exclusion of the so-called Austro-Asiatic or Munda (or Kherwa_ri) languages is also rejected. Instead, it is proposed that there was a proto-Indian linguistic area (c. 2500 BCE) which included these three language groups. The underlying assumption is that the so-called Dravidian, Munda and Aryan languages can be traced to an ancient Indian family by establishing the unifying elements, in semantic terms. This echoes Pope's observations made in a different context: '... that between the languages of Southern India and those of the Aryan family there are many deeply seated and radical affinities; that the differences between the Dravidian tongues and the Aryan are not so great as between the Celtic (for instance) and the Sanskrit; and that, by consequence, the doctrine that the place of the Dravidian dialects is rather with the Aryan than with the Turanian family of languages is still capable of defence... the resemblances (appeared) most frequently in the more uncultivated Dravidian dialects... the identity (was) most striking in the names of instruments, places, and acts connected with a simple life...' (G.U.Pope, *Indian Antiquary*; loc. cit. R. Swaminatha Aiyar, *Dravidian Theories*, 1922-23, repr., Delhi, Motilal Banarsidass, 1987, pp.11-12).

Methodology and limitations of the work

The methodology to test the hypotheses will be based on the design of a vocabulary super-set (in semantic terms). The governing principle of this lexicon is that phonetic and grammatical laws are subordinate to semantic laws within a language family. Cognates do not have to be concordant in phonetic and morphological forms; cognates have to be concordant in phonetic and semantic forms to suggest linguistic affinity among dialects of a language family.

To quote, **Tolka_ppiyam**, "**ella_c collum porul. kur-ittan-ave_**" (**Tol. Col. Peya. 1**), i.e. all words are semantic indicators.

The compounded forms of *sememes* of the *lingua franca* of the Sarasvati-Sindhu doab civilization have been reconstructed from the following sources:

Lexical entries of Indian languages found in the comparative, etymological lexicons: CDIAL (*A Comparative Dictionary of Indo-Aryan Languages*) and DEDR (*A Dravidian Etymological Lexicon*); etymological groups (as semantic super-sets) culled from

(a) lists of ancient verb forms such as those found in the **dha_tupa_t.ha**, Niruktam, Whitney's lexicon and Vedic lexicon;
(b) lists of ancient noun forms, such as materia medica found in **nighan.t.u's** and medical works, annotated with insights from botanical works, pharmacopoeia and works on pharmacognosy ;
(c) epigraphical records of many languages of the region which mainly record economic transactions; and
(d) language lexicons of Indian languages.

This lexicon is organized primarily on a comparative basis and secondarily on a historical basis (and not on a genealogical basis, i.e. not trying to trace the changes in phonetic forms of a sememe). Given the limitations of this organization, it has not been considered essential in this lexicon, to reformulate the old Indian phonetic form with an *.

The vocabulary is presented in groups of etyma taken from CDIAL, DEDR, Tamil and other language lexicons of Dravidian, Aryan and Munda languages. The etymological groups are put together as semantic cognates and it will be left for future research work to determine the nature of the interactions (or what linguists call, using a pecuniary term: 'borrowing') between and among the languages which constituted the proto-Indian linguistic area. The results of the research are restricted to the identification, in a comparative lexicon, of comparative *sememes* and morphemes, including many allomorphs (i.e. two or more forms of a morpheme). An attempt to conjecture or decipher the possible *proto-Indian* 'phonetic' forms will require further studies and research work. The results of these studies will help for e.g. (1) to eliminate duplicate semantic clusters included in this lexicon and (2) to re-group the clusters in a true syllabic sequence.

For 'alphabetical` indexing or 'areal` (i.e. by geographical regions) sequencing, Turner's *A Comparative Dictionary of Indo-Aryan Languages* (CDIAL), Burrow and Emeneau's *A Dravidian Etymological Lexicon* (DEDR), Pali, Sanskrit, Kannada, Tamil, Munda, Santali and other lexicons of Indian languages are unsurpassed sources. DEDR solves the problem of sequencing by using Tamil morphemes as the reference base for the entire group in Tamil syllabic order. In effect, the vocabulary of this lexicon, include many CDIAL and DEDR entries as sub-sets and constitute a semantic index to both CDIAL and DEDR which will continue to provide the basic references to areal etyma.

The primary justification for choosing a simple sequencing based on a limited number of initial vowels/consonants and consonantal combinations (with intervening vowels or nasals) is that each semantic cluster can be treated as a distinct monograph which may provide material for further study of the Indian language family in which there has apparently been an extraordinary semantic affinity between and among related languages.

One substantive problem in organizing the semantic clusters was the problem of 'alphabetical' or 'syllabic' sequencing. It has been difficult to follow a strict alphabetical ordering in this work. This is due to the author's inability to pin down the ancient 'phonetics' of a sememe or to construct a proto-Indian form. This limitation has resulted in some duplication of terms in more than one semantic cluster. The idiosyncratic sequencing is due to the limits of knowledge of the author; the result has been a number of semantic clusters included in the lexicon containing phonetic forms which may not always correspond with the etymological grouping.

Samuel Johnson refers to a lexicographer as an harmless drudge. What a pleasant and glorious drudge! An etymologist is also a drudge but may provoke, hopefully lively, linguistic disputes among the proponents of dialects of a language family, on issues such as 'true inheritance' or 'great antiquity'! The disputes (or positive creative tensions), may also draw inspiration and guidance from the past linguistic studies of great scholars who have provided valuable insights into the phonological, grammatical and lexical aspects of a proto-Indian language family.

An English semantic index has been included. The index is composed of (i) English meanings, and (ii) flora (names of botanical species in Latin terms), plants and products of plants (in English and vernacular terms which have entered the English lexicon). As in DEDR, no attempt has been made to state the equivalence of

Latin flora terms; DEDR entries in a group of etyma record the equivalence found in Hooker at the end of the numbered etymological group.

The index is primarily based on the elegantly designed index of *A Dravidian Etymological Dictionary* (DEDR). To quote from DEDR: (p.773) "This is an index of the more important meanings recorded for words in the Dravidian languages. No attempt has been made to list all the English meanings given in the entries, since such a procedure would have swollen this index beyond all reason. In fact, in any attempt to keep it within bounds, usually only one of a group of synonyms or near-synonyms has been listed: e.g. *resemble* is listed, but not *similar* and *like*... The derivational system of English words, since it does not coincide with that of Dravidian, has in general been ignored..."

Organization of the work

The dominance of economic activities in the lives of ancient Indians will be apparent from the semantic clusters compiled in this lexicon. Semantic clusters include words expressing cognate 'thoughts'.

The ancient economic court was dominated by plant products such as fragrances, incenses and exudations which were highly valued and in great demand. For example, the ancient Egyptian civilization records trans-continental expeditions to **pw'nt** (or **punt**)[1] in search of such plant products which may be designated as **Kube_ra's nava-nidhi** or nine treasures of Kube_ra, in the yaks.a tradition of great antiquity.

The inclusion of names of many plants and plant products in the lexicon, has a strong justification in terms of ancient life-styles. The etyma related to plants have been elaborated with cross-references on therapeutic effects described in works dealing with the subject of pharmacognosy and, in some instances, the references in pharmacopoeia of various countries have also been provided.

Plants and plant products (gums, gum-resins, fragrances, incenses, plant exudations, bark, in particular) had an extraordinary place in the cultural processes of ancient civilizations (particularly in the Indian linguistic area, in the ancient Egyptian civilization and in the Biblical areas), including for example, the depiction of the so-called nine treasures of **Kube_ra**, all of which may relate to plant products. (i) The existence of many **nighan.t.us** principally devoted to materia medica of the ancient medical systems and (ii) the archaeological finds of viha_ras such as the Ajanta and Ellora caves which might have been used by medicine-men and to stock plant products justify further studies on the economic importance of plant products in cultural history.

Vedic **soma** was comparable in economic importance to the plants and plant products. In an extraordinary process described eloquently in Vedic chants, **soma** was purchased, and went through a process kept secret from the seller. **Soma** was washed in water (**yad-adbhih paris.ichyase mr.jyama_no gabhastyoh- : RV. ix.65.6**), then pounded either with stone or in a mortar (RV. 1.83.6; RV. 1.28.4); it had **am.s'u** (RV. ix.67.28); it yielded **andhas, rasa, pitu, pi_yu_s.a** or **amr.ta**; it was purifed through a strainer (**antah- pavitra a_hitah- : RV. ix.12.5**). It was not 'drunk' by mortals. **Soma** was the product of an activity using intense fire, and involving the participation of the entire household for days and nights. **Soma** was wealth.

The dawn of urbanization and transition from agrarian economy to an economy dominated by artisans, are vividly reconstructed from the archaeological finds of the Sarasvati-Sindhu doab civilization which may also be called the Sarasvati_ civilization. A pen picture with exquisite photographs is provided in the *Age of God-Kings:*

"About 2500 BC, a people of unknown origin started constructing a series of cities as remarkable as any the world had yet seen. Artisans set to work, trade flourished and a system of writing evolved. At its apogee, the Indus (Sarasvati-Sindhu) civilization encompassed nearly 1.3 million square kilometers; its boundaries stretched from the foothills of the Himalayas to the Arabian Sea and from the Ganges watershed to the Gulf of Bombay, just to the north of what is now Bombay. It was the largest cultural domain of its era... This people also perfected the art of casting objects in bronze, a breakthrough in technology that ranks among humankind's greatest early achievements... The pictographic script of the Indus (Sarasvati-Sindhu) people has not yet been

successfully deciphered. The Southeast Asian rice farmers seem not to have developed a system of writing... the Indus (Sarasvati-Sindhu) people... built grand cities, centers of production and trade... One of these cities... Harappa (Sarasvati-Sindhu)... around 2300 BC, Harappa (Sarasvati-Sindhu) was home to 35,000 people... Another great city took shape 550 kilometers to the south, on the lower Indus (Sarasvati-Sindhu)... Mohenjo-Daro -- 'Hill of the Dead' in Sindhi... Two gateways provided access through the wall. Within the citadel were assembly halls, administrative offices and a number of residences for various officials and functionaries. Only an enormous collective effort could have created these two great urban centers of the Indus (Sarasvati-Sindhu) culture... The huge complexes at Mohenjo-Daro and Harappa (Sarasvati-Sindhu) that are believed to be municipal granaries covered thousand upon thousand of square meters. They had raised brick floors... and strong, timbered roofs to protect against the weather. The apparent threshing areas nearby were paved in brick and included circular pits where workers pounded the kernels with wooden staves to remove the husks from the grain... The harvest was probably a state monopoly, and the granaries served, in effect, as state treasuries... They were the world's first people to grow cotton and to weave its fibre into textiles... Trading posts were established far beyond the valley's fringes. The Indus (Sarasvati-Sindhu) people founded a settlement at Sutkagen Dor, west of Baluchistan and within reach of the Persian Gulf. To the south of the valley, a large seaport took shape at Lothal on the Gulf of Cambay... From Lothal, high-prowed, double-ended sailing vessels carried the gold, gems and timber products of southern India along the coast to the Sarasvati-Sindhu doab and beyond. The richest trade route from the valley lay to the west, through the Persian Gulf to Mesopotamia. Starting about 2350 BC, traffic with the urban centers of Sumer and Akkad expanded to become a prime source of revenue... Merchants used sets of cubical stone weights that never varied in value throughout the Indus (Sarasvati-Sindhu) region. The basic unit was 16, equal to 14 grams. The larger weights were multiples of 16 -- 32,64,128, and so on up to 12,800 (11 kilograms); the smaller ones were all fractions of 16... The Indus (Sarasvati-Sindhu) merchants, like their Sumerian counterparts, developed a method of record keeping and used carved stone seals to stamp their property. Every mercantile family had its own device, and probably every important citizen did also. More than 2,000 examples have been found in the Indus (Sarasvati-Sindhu) cities, and others have turned up in Mesopotamia, left there by overseas traders... One popular motif appears to have been a unicorn sniffing at an incense burner. The unicorn is probably a bull in profile, so that one horn hides the other. But why the creature has been offered incense is a puzzlement. In a seal from Mohenjo-Daro, both the unicorn and the incense brazier are being carried aloft in some kind of procession... the Indus (Sarasvati-Sindhu) tongue is lost in antiquity and none of the signs (on seals) corresponds to any used by the Egyptians or Sumerians. The seal inscriptions are brief -- one or two lines... The Indus (Sarasvati-Sindhu) people left no surviving histories, no religious texts, no literary epics... (Harappa (Sarasvati-Sindhu)n merchants used the seals as a kind of trademark impressing them on clay tags to label their goods)... after each catastrophe (earthquake or flood), the citizens picked up their lives again. Some sections of Mohenjo-Daro were rebuilt as many as eight times. In each reconstruction, the architects re-created the previous construction virtually brick for brick... Sometime during the nineteenth century BC, however, the Indus (Sarasvati-Sindhu) cities began to slip into permanent decline... Scribes in Mesopotamia recorded rich shipments from the Sarasvati-Sindhu doab until around 1800 BC, when they suddenly ceased... The urban heritage was passed on to the east... somber notes of Harappa (Sarasvati-Sindhu)n ideology would continue to reverberate through the coming centuries." (*The Age of God-kings, 3000-1500 BCE*, Amsterdam, Time-Life Books, 1991, pp. 129-141).

Archaeology and Language

One approach suggested by Colin Renfrew is a correlation, however hypothetically, of language changes with demographic and social changes recorded by archaeology. Decipherment of the script is important to bring the civilization within the bounds of history, and to establish that the civilization should not remain categorized as 'prehistoric'. For, 'pre-historic' would mean 'prior to the use of writing.' (cf. Colin Renfrew, *Archaeology and Language: the Puzzle of Indo-European Origins*, Penguin Books, 1987, p.2). If this lexicon has established that the Indian language family had closely related members, it should be reasonable to hypothesize that the Indus (Sarasvati-Sindhu) Script was related to one or more dialects of this language, though there is no direct evidence to prove precisely which language was spoken between 2500 to 1700 BCE in the region traversed by this civilization.

"... (Archaeology) is beginning to interest itself in the ideology of early communities: their religions, the way they expressed rank, status and group identity. The question of language is important here... modern linguistics and current processual archaeology offer the opportunity for a new synthesis... (Sarasvati-Sindhu doab Civilization) was a literate civilization... some four hundred signs were found, fifty-three of them used commonly... this suggests that it must be a mixed hieroglyphic and syllabic script rather than a pure syllabic script like Minoan Linear B... not enough (signs) for a true pictographic script like that of the Egyptian hieroglyphs or the Chinese script... are the Sarasvati-Sindhu doab sealstone inscriptions in an early form of Indo-European?... there is no inherent reason why the people of the Sarasvati-Sindhu doab Civilization should not already have been speaking an Indo-European language, the ancestor of the *Rigveda*... Hypothesis A, then, would carry the history of the Indo-European languages in north India and Iran back to the early neolithic period in those areas... (Hypothesis B) outlines an alternative... which accepts the likelihood of local farming origins... (and) a process of lite dominance... by well-organized and mobile tribal groups, with a chiefdom organization... while we cannot expect to find direct evidence in the archaeological record for a specific prehistoric language or language group, we can indeed study processes or demographic and social change. It is these processes of change which we may seek, however hypothetically, to correlate with language change in those areas... it is perfectly possible that the languages used in the Sarasvati-Sindhu doab civilization as early as 3000 BCE were already Indo-European... We are talking here of simple peasant farmers, with a restricted range of domestic plants and animals and a limited range of crafts. These may generally have included weaving and pottery-making and other farming skills, but theirs were egalitarian societies... 'segmentary societies,' laying stress on the almost autonomous nature of individual village or neighborhood communities. Naturally there were links and marriage exchanges between these... three issues now remain that we should look at: language origins, language dispersals, and the relationship between archaeology and linguistic studies... " (Colin Renfrew, *op cit*., pp. 5,7, 183-185, 190-191, 197, 205, 264. 271, 273).

One approach to study *changes* in languages is to cluster the dialects of a language together. Such a clustering is attempted in this lexicon. These clusters provide the basis for further studies to correlate the *changes* in languages with the socio-economic changes established through archaeology.

Language and Writing System

An attempt to link the Indus (Sarasvati-Sindhu) Script to the Indian etyma, is a search for Indian linguistic roots. It is, in effect, a search for words which are 'as old as time` in Bharat.

Many scripts of the current Indian languages are syllabic in structure. It is notable that Tamil, in particular, utilizes a remarkably compact alphabet (syllabary derived via grantha forms from the Bra_hmi_ script); for example, the script symbol for the syllable, **ka** connotes a phonetic spectrum of **ka**, **kha**, **ga** and **gha**. The use of a limited number of script symbols for syllables is perhaps an indication that, even if the phoneme (for a given morpheme) had a ka, kha, ga or gha, the semantic content remained unaltered. This extraordinary economy (yet, diversity) in script form is, therefore, an indication that for effective linguistic communication of a message, phonetic formants are subordinate to the semantic structure of morphemes.

Many ancient scripts were evolved on the principle of 'ideographs', i.e. depicting a word as an image (logo, on a seal, for example) using a homophone (i.e. a similar sounding word). The importance of 'images' in formulating 'meaning' (in neuronal structures) or for designing 'scripts', is paralleled by a distinct semantic structural feature of Santali language in which words are not uniquely marked for specific functions such as noun or verb but most stems of words are multifunctional. There is no grammatical gender for nouns which may be lexically marked (using for example, **herel** for male; **maejiu** for female). There are no formal marks for grammatical class, a word can perform various functions: as noun, as adjective or as verb. In Santali, every stem or root (sememe) is potentially a verb. Qualifiers can be constructed by simply adding **-n** for e.g. **kad.awa.n hor.** a man who has buffaloes. (George L. Campbell, *Compendium of the World's Languages*, Routledge, London, 1991, p. 1199).

"In Santali, any word may (in theory at least) be used as a verb simply by adding **a**, which is the verbal sign, and other signs to signify tense, mood etc. The **a** alone signifies the general or future tense in the active voice -

- used to make general statements, or statements referring to the future... The verb generally comes at the end of a sentence or phrase... (Santali language) consists of root-words and various infixes, suffixes and particles, joined together or agglutinated in such a way as to form phrases and sentences... **dalgot'kedeae**... **dal** the root word, meaning to strike or striking; **got'** an adverbial particle giving the sense of quickly or suddenly; **ked** the sign **ket'**, denoting the past tense of the active voice, modified to **ked**... **e** ... signifying an animate object -- him, or her... **a** the verbal sign, showing that the idea of striking is used verbally; **e** the short form of the 3rd personal pronoun, singular... denoting the subject -- he, or she." (R.M. Macphail, *An Introduction to Santali*, 1953, p.2).

Taking into account, this historical factor which governed the evolution of alphabets and the important part played by 'root word' in Santali (a member of the ancient Indian family of languages) the *Indian lexicon* attempts to identify 'sememes' and also provide an aid to epigraphists or scholars interested in deciphering the Indus (Sarasvati-Sindhu) script. For this purpose (and based on the assumption that the Indus (Sarasvati-Sindhu) script may be related to the Indian language family), many semantic clusters in this lexicon include, what are titled as, 'image' words, i.e. word forms which could have been represented graphically, as in the symbols and signs used in the as-yet undeciphered Indus (Sarasvati-Sindhu) script. Such 'image' clusters are sequenced close to the other substantive clusters which are related to life-activities of ancient civilizations as evidenced by archaeological finds and artifacts. The titles provided to many semantic clusters with the prefix 'image' refer to a number of images provided by the pictographs and signs of the seals and tablets containing Indus (Sarasvati-Sindhu) script. Such pictographs and signs will be clustered to aid those interested in deciphering the script. At this stage of the author's knowledge, it has not been possible to include some thoughts on 'alternative interpretations' of these 'ideographs' of the Indus (Sarasvati-Sindhu) script. A separate monograph will be presented providing an approach to breaking the deadlock of the decipherment problem. A start can be made assuming that each pictograph is a homonym (i.e. an image of a similar sounding 'substantive' word). Many 'substantives' are indeed based on the economic activities of an evolving civilization.

Semantics and Poets' search for the supreme language

To aid researchers in linguistics and neuro-scientists interested in the study of brain functions related to linguistic competence, some principal sememes of ancient speech are listed in separate annexes of this lexicon. This is consistent with the principal focus of this lexicon which is to: cluster together word forms with comparable semantic content and establish the essential semantic unity among the Indian languages. In this process of semantic clustering, attention is paid to concordant phonetic forms.

In evaluating the development of pronunciation and sense of words of the languages of the Indian linguistic area, an effort has been made to avoid duplicating the functions of lexicography. The focus is on 'meaning' of words, extensions of meaning and on phonetic transforms cognate with the basic words.

Lexicographers have attempted to define the phonetic structure of a morpheme in a language, with care and integrity, given the constraints of the phonetic symbols used for the script of the chosen language. This lexicon proceeds on the assumption that the language lexicons which are its source books, are based on painstaking social surveys and provide a commonly accepted form (i.e. through social contract) of the phonetic variants of various dialects of any one language. Since the focus is on semantics, the author has exercised a degree of freedom to coalesce the phonetic variations and as necessary, repeated some etyma in more than one semantic cluster. Speakers of every language and poets, in particular, of every language do possess enormous degrees of freedom for verbal creativity to anchor life experiences, but subject to the social contract on *sememes* or the 'meaning' of morphemes used in inter-personal verbal or written communication.

Take for instance, the rules of Sanskrit language, codified by the linguistic genius, Pa_n.ini and obeyed through literary media for over a millennium. Pa_n.ini's phonological and morphological canons are hypostatized (attributed real identities to a concept) aphorisms. Pa_n.ini was held in such awe that later linguists would not refer to what Pa_n.ini 'says' but use the verb **'pas'yati'** referring to his aphorisms [i.e. referring to what Pa_n.ini 'sees', as a r.s.i or seer]. Pa_n.ini opposes the **bha_s.a_**, defined by him in an archaic

chandah- (cf. S. Lvi, J.A., 1891, II, p. 549; Mmoires de la Socite de Linguistic de Paris, XVI, p.278-279; loc. cit. Bloch, *The Formation of the Mara_t.hi_ Language*, 1914, p.3). "... in the enumeration of Bharata (XVII, 48): **ma_gadhyavantija_ pra_cya_ su_ryasenyardhama_gadhi_ ba_hli_ka_ da_ks.in.a_tya_ ca sapta bha_s.a_h- praki_rtita_h-**" six out of seven are geographically determinable and three out of these four (ma_gadhi, s'auraseni_, maha_ra_s.t.ri) are mentioned by Vararuci. Later on Dan.d.in adds to these three La_t.i_ 'and similar other ones' (**Ka_vya_dars'a**, I,35)... Later on Vararuci situates the Pais'a_ci_ on the same level as the three great Pra_krts with a geographical name... the language of **braj** is used for the cycle of Kr.s.n.a, that of Bundelkhand for that of A_lha_-u_dal, that of Avadha for that of Ra_ma and generally speaking for the Epic... No region of India has imposed its language on the entire country... within each dialect there is a large quantity of words or series of words which have had a history independent of the dialects where they have been found in use. This history, which can be established with some difficulty even in the case of well-known languages as those of Europe, is altogether impossible, at least provisionally, in India... " (Bloch, *op cit*., pp. 11-12; p.45). In making bold to attempt this 'impossible' task through semantics, one dominant structural characteristic of the Indian language family can be noted with confidence: the use of 'echo words' identified as such in this lexicon. (Pa_n.ini calls such words **a_mred.ita** or repeated : Bk. VIII. Ch. 1.2). The tendency to repeat words or with fine initial consonantal variations is a characteristic that runs across the entire family of languages, a characteristic that was also noted by Vararuci. The ancient linguists tried to delineate this 'refined' language as the 'perfect' language (whether divinely inspired **smr.ti** remembered or **s'ruti** heard); yet, the spoken word was governed by the inexorable laws of neurosciences and social contract -- as evidenced by the Pra_kr.ts (original or natural forms) which did not obey these 'rules' of the grammarian though adored by the linguists. The Pra_kr.ts (including Pali) continued to diverge from the 'perfection' of Sanskrit and were socio-linguistically accepted in Sanskrit drama in the early centuries of the Christian era, though not spoken by gods or heroes in the dramas, but only by the proletariat! Women sang in Maha_ra_s.t.ri_ pra_kr.t, spoke in S'auraseni pra_kr.t and people in the lower rungs of the social ladder spoke ma_gadhi_ pra_kr.t. Many pra_kr.ts were written in Kharo_s.t.hi script. Buddha (c. sixth century BCE) perhaps preached in ardhama_gadhi_ pra_kr.t (Pali), written in Bra_hmi_ script. Mun.d.a_ri_ and Santali (grouped as Kherwari or Austro-Asiatic) perhaps ante-date the Indo-European or the so-called Dravidian linguistic presence in India. The Indian language family also includes Gypsy (Romany; gypsy ~~ Egyptian; ethonym: roma). Gypsies popularly believed to have come from Egypt, emigrated from India towards the end of the first millennium A.D. via Iran into Anatolia, South Russia, and the Balkans, to reach western Europe by the fifteenth century, Britain by the sixteenth; via Iran, Syria and the Mediterranean into north Africa and the Iberian peninsula. (George L. Campbell, *Compendium of the World's Languages*, Routledge, London, 1991, p.1164).

Ya_ska (6th-4th c. BCE), Pa_n.ini (5th c. BCE), Ka_tya_yana (3rd c. BCE), Patanjali (c. 150 BCE) have laid the foundations of Sanskrit etymology and grammar. The su_tras of Pa_n.ini analyze Sanskrit into a system of roots, stems and suffixes. Ka_tya_yana's va_rttikas explain, criticize and supplement these rules. Patanjali's bha_s.ya explains the rules of Pa_n.ini and Ka_tya_yana and is often severely critical of the latter. Kaiyat.a commends Patanjali of the three since he has observed more numbers of actual forms : (II.4.26) **munidvaya_c ca bha_s.ayaka_rah- prama_n.ataram adhikalaks.yadars'itva_t** : the author of the commentary (i.e. Patanjali) has greater authority than the other two sages because he has observed more linguistic usage. Grammatical rules were formulated, perhaps, for the benefit of 'immigrants' or as teaching aids to students of a language. In this process of delineating grammatical rules, the phonetic and morphological structures of each of the Indian languages were codified and frozen as 'rules' of the language. (cf. the example of **Tolka_ppiyam** for Tamil or **As.t.a_dhya_yi** for Sanskrit). Pa_n.ini also called **Gonadri_ya/ Gonika_putra**) is perhaps the oldest grammarian of the world. His **As.t.a_dhya_yi** (lit. 8 chapters with 3,996 mnemonic su_tras) and later critical evaluation/defence by Patanjali (also called, **Da_ks.i_putra** in his **Maha_bha_s.ya** or Great Prose Work) countering Ka_tya_yana's criticism in the Va_rttika_s (explanatory tracts of words) are unsurpassed ancient linguistic explorations into the etyma of and rules governing the Sanskrit language. Pa_n.ini traces with stunning precision and scholarly excellence, the individual phonetic and morphological changes throughout the language which may be called a language that spanned both Vedic and Classical Sanskrit. (For a good survey of works on Pa_n.ini cf. George Cardona, **Pa_n.ini : A Survey of Research**, 1976; for an excellent reader on the Sanskrit grammarians, cf. Stall, J.F. (ed.), *A Reader on the Sanskrit Grammarians*, Cambridge, M.I.T. Press, 1972). It would be inappropriate to call Pa_n.ini's Sanskrit brahminical or Aryan; for

he notes (Ch. VI, 62,58) that there were non-Aryan brahmins as well! The contributions made by ancient Indian linguists are echoes of the oral tradition of padapa_t.has (i.e. the word texts which give every word of the sam.hita_ free from euphonic combinations and analyze compounds into their component morphemes) of the Vedic chants which are as old as civilization. There are other linguistic tracts, in particular in the so-called Dravidian family of languages and in the so-called Austro-Asiatic family of languages (exemplified in India by Mundarica and Santali languages), which preserve the echoes of the ancient speech which sustained ancient civilizations such as the Sarasvati-Sindhu doab civilization.

Ya_ska is perhaps the first etymologist of the world. His **Nirukta** treats etymology as a complement of grammar (**tad idam vidya_-stha_nam vya_karan.asya ka_rtsnyam : N. i.15**) and is a principal aid to understanding Vedic texts. According to Ya_ska, grammatical rules are not universal; too much importance should not be attached to the grammatical form because, the complex formations (**vr.ttayah-**) have many exceptions; he is a bold etymologist who derives **is.t.i** (sacrifice) from **yaj** (to sacrifice) based on the meanings of words in the context of their use. His principal rule is direct: 'If their meanings are the same, their etymologies should be the same, if the meanings are different, the etymologies should also be different (**N. ii.7**); 'words are used to designate objects with regard to everyday affairs in the world, on account of their comprehensiveness and minuteness (**N. i.2**)[Durga, the commentator, explains 'comprehensiveness' as a psychological process (manifest and unmanifest states of consciousness) to apprehend meaning through the instrumentality of the spoken word; the process is elaborated: manifest consciousness is expressed through an effort of exhalation of breath, modification of speech-organs to produce the word; the word pervades the unmanifest consciousness of the hearer, makes it manifest and the meaning is apprehended. Durga also comments on the term 'minuteness': movements of hands and the winking of the eyes etc. are also comprehensive; they will express the meaning and in this manner there will be no need to study grammar and the Vedic texts! But these are not minute, i.e. these communication modes are not definitive (or accurate) and are not economical in the effort in production.] Ya_ska notes the four word-classes, noun, verb, preposition and particle and adds: ... S'a_kat.a_yana holds that nouns are derived from verbs. This, too, is the doctrine of the etymologists. 'Not at all,' says Gargya and some of the grammarians, 'but only those, the accent and grammatical form of which are regular and which are accompanied by an explanatory radical modification.' Those (nouns), such as cow, horse, man, elephant etc. are conventional (terms, and hence are underivable)(**Ni. 1.12**). Pa_n.ini combines particles (**avyaya**, 195 in number) and prepositions into one category, **nipa_ta** (Bk. I, Ch. IV, 56). According to Ya_ska, particles are of three types: (i) of comparison (**upama**), (ii) of adding or putting together of the senses or ideas (**karmopasam.graha** or semantic sub-clusters), (iii) of expletives which do not express any meaning (**kam, i_m, id, u** and **iva**). Ya_ska notes that the verb has 'becoming' as its fundamental notion; and that the noun has 'being' as its fundamental notion and recalls that according to Audumbara_yan.a speech is permanent in the organs only. This statement of Audumbara_yan.a is fundamental in understanding the neural bases of linguistic competence.

Tamil (a primary member of the so-called Dravidian languages) is an ancient language. This lexicon contains a number of references from Tamil works, acknowledging the antiquity of the language and its importance as a dominant member of the Indian language family. Similar references are provided from Vedic texts in many etyma groups. The rich ancient Tamil literature (which dates back to the San:gam age of c. the first millennium A.D.) includes **Tolka_ppiyam** (?c. 5th century A.D.), a grammar and socio-linguistic tract; the fifth-century work, Tiruval.l.uvar's **Tirukkural.**, **s'aiva** religious works such as **Tiruva_cakam** and **Tirumantiram**; existential expositions such as **Pur-ana_n-u_ru, Akana_n-u_ru** (400 poems each on social and family lives); **Pattuppa_t.t.u** (ten songs) and **Et.t.uttokai** (eight anthologies) delineating love and war as facets of life. To quote Caldwell who relates a study of this language to the comparative grammatical structures of a family of the so-called Dravidian languages: "Does there not seem to be reason for regarding the Dravidian family of languages, not only as a link of connection between the Indo-European and Scythian groups, but -- in some particulars, especially in relation to the pronouns -- as the best surviving representative of a period in the history of human speech older than the Indo-European stage, older than the Scythian and older than the separation of the one from the other... The orientalists who supposed the Dravidian languages to be derived from Sanskrit were not aware of the existence of uncultivated languages of the Dravidian family, in which Sanskrit words are not at all, or but very rarely, employed... Another evidence consists in the extraordinary copiousness of the Tamil vocabulary, and the number and variety of the grammatical forms of

Shen-Tamil. The Shen-Tamil grammar is a crowded museum of obsolete forms, cast-off inflexions, and curious anomalies... It is a different question whether some of the Dravidian forms and roots may not have formed a portion of the linguistic inheritance, which appears to have descended to the earliest Dravidian from the fathers of the human race." (Caldwell's *Comparative Grammar of the Dravidian Family of Languages*, p.x, p.45, p.82). In Tolka_ppiyam, Tamil does include the so-called vat.acol (or northern words): **vat.acor- kil.avi vat.a l.er..ut tori_i er..uttot.u pun.arnta colla_kumme : Tol. Col. 395**, i.e. 'northern' words are those words which shed their scripts and are adapted; this is distinguished from 'dialectical' words (centamir.. ... ticai-c-cor-kil.avi) in vogue in the twelve territories of the Tamil land with regional variations and two other kinds of words: **iyar--col, tiri-col** (primitives and derivatives) used in poetry (*ceyyul.*).

This lexicon establishes the possibility of tracing the etyma for both the agglutinative and inflexional types of languages. The inflexional languages such as Sanskrit and languages influenced significantly by Sanskrit show a myriad morphological variants. Unlike CDIAL which breaks out the inflexional variants under 'head words' based on assumed 'root words' with an *, this lexicon clusters the variants under semantic clusters. [Thus, for example, **vij** (move suddenly) can be clustered with **ve_ga** speed and **vi_j** or **vyaj** fan and **vizun** to sift, winnow (K.) As far as practicable, only words listed in the language lexicons are included in the semantic clusters of this lexicon, without making any attempt to derive the ancient phonetic form of the Indian sememe or a proto-Indian reconstruction of a morpheme with an *.] This lexicon, as does R.L. Turner's *A Comparative Dictionary of Indo-Aryan languages* (CDIAL), includes a number of words from the Vedic texts, attesting to the great antiquity of many semantic clusters which are also concordant with the archaeological artifacts unearthed from the Sarasvati-Sindhu doab civilization and other Indian archaeological explorations. An early attempt to trace the 'sememes' was made in works such as the **Dha_tupa_t.ha** for Sanskrit and in the brilliant work of the Vedic scholars of the nineteenth and twentieth centuries (following the tradition of Sa_yan.a in the **R.gvedabha_s.yabhu_mika_** of an earlier century) who have successfully established the semantic contents of the Vedic texts, proving Ya_ska right: "Vedic stanzas are significant, because (their) words are identical (with those of the spoken language)..." (**Nirukta 1.16**). Sa_yan.a makes a similar comment in his preface to the R.gveda: **va_kya_rtho_ lo_kave_dayo_ravis'is.t.ah-** (the meaning of expressions of the Vedic Sanskrit and of the popular speech is not different) and also notes: '**abhidha_ne_rthava_dah-** there is a figurative description in such expressions... this is very frequently employed in poetical compositions. For instance, a river is described as having a pair of cakrava_ka birds for her breasts, a row of swans for her teeth, a ka_sa plant for her garment, and moss for her hair. Similarly, the Vedic texts invoking inanimate objects should be construed as implying praise...' It can be hypothesized that **soma** was a similar 'figurative description'.

Grammatical philosophy

Some leads are available to explore further the concept of 'meaning' in philosophical and linguistic terms. "*homo foneticus indicus* was no mere cross-sectioned larynx sited under an empty cranium... on the contrary, the whole man, belly, heart and head, produced voice" (J.E.B. Gray 1959, "An Analysis of Nambudiri R.gvedic Recitation and the Nature of the Vedic Accent", *Bulletin of the School of Oriental and African Studies* 22, pp. 499-530) A word points to an external object, as a semantic indicator; it also refers to the intention of the speaker. One technical term is 'artha' which may be a synonym of 'meaning'. "For the grammarian, 'artha' does not mean the external reality but whatever the word brings to the mind. Artha does not mean vastvarttha but s'abda_rtha, not reality, but, the meaning of words. Individual words bring something to the mind and the sentence as a whole also brings something to the mind. But these things are included in the expression 's'abda_rtha'. Grammar studies both these things in order to evolve notions which will explain the forms of the language. Grammar is satisfied if these notions conform to what we understand from words, no matter whether they conform to reality or not. Grammar does not look at reality directly in the face. As Hela_ra_ja puts it: **s'abdaprama_n.aka_na_m. hi s'abda eva hi yatha_rtham abhidhatte tathaiva tasya_bhidha_nam upapannam; na tu vastumukhapraks.ataya_** : for to those whose authority is the word, the word designates what it corresponds to, and its designation is accordingly appropriate; but it is not for looking reality directly in the face (Hela_ra_ja on Va_kyapadi_ya III. Sam.. verse 66)... Thus while explaining the different conceptions of Time mentioned by Bharttr.hari in the Ka_lasamuddes'a such as that it is an entity which exists apart from the mind or that it is a mere construction of the human mind, Hela_ra_ja says that Bharttr.hari is not really concerned with what time is philosophically, but that he is anxious to examine and

analyze that something which is responsible for our putting the Sanskrit verb in different tenses as in **abhu_t** (was), **asti** (is) and **bhavis.yat** (will be). That something may not be able to stand close philosophical scrutiny, but if it serves the purpose of explaining the different tenses, one would have to accept it (Hela_ra_ja on Va_kyapadi_ya. III. Ka_. 58). Similarly in the kriya_samuddes'a, the question is: What is action? The answer given by Bharttr.hari on the basis of the Bha_s.ya passages is that it is a process, something having parts arranged in a temporal sequence. It is not directly perceptible, but it is to be inferred... These parts may be further subdivided and the smaller parts will also be actions. There will come a time when the part cannot be further sub-divided. It cannot then be called action at all. Only that can be called action which has parts arranged in a temporal sequence. After having clearly explained all this, Hela_ra_ja adds that for grammarians the real question is not whether an action has actually parts or not, but whether the verb presents it as such. The answer is that verbs do present action, however momentary, in nature, as something having parts which cannot co-exist but are arranged in a temporal sequence. And Vaiya_karan.as go by what the words present to us. (Hela_ra_ja on Va_kyapadi_ya. III. Kri. 10)." (Subramania Iyer, K.A., "The Point of View of the Vaiya_karan.as", *Journal of Oriental Research*, 18, pp.84-96, 1948).

Vya_d.i (**Sarvadars'ana-sam.graha**, *Bibliographica Indica*, pp. 140-4) notes that since letters by themselves cannot convey meaning, a unifying factor can be hypothesized; the factor (**sphot.a**) which is all-pervading and exists independent of letters. **sphot.a** is the idea which bursts out or flashes on the mind when a sound is uttered, the impression produced on the mind at hearing a sound: **budhairvaiya_karan.ah- pradha_na bhu_ta sphot.a ru_pavyan:gyajakasya s'abdasya dhaviniriti vyavaha_rah kr.tah** (**Ka_vyapraka_s'a. 1**; it is also the eternal sound recognized by the Mi_ma_m.sakas or inquirers (Skt. lex.) It connotes the relationship between sounds and meaningful words. **sphut.ati praka_s'ate'rtho' sma_d iti sphot.o va_caka iti ya_vat** (Kon.d.abhat.t.a, **Vya_karan.a-bhu_s.an.a** (Bombay, 1915, p. 236); Na_ges'abhat.t.a, **Sphot.ava_da** (Adyar Library, 1946), p.5). Ma_dhava, **Sarvadars'anasam.graha** (ed. Abhyankar, p. 300), gives the double explanation that the **sphot.a** is revealed by the letters, and itself reveals the meaning: **sphut.yate vyajyate varn.air iti sphot.o varn.a_bhivyan:gyah-, sphut.ati sphut.i_bhavaty asma_d artha iti sphot.o' rthapratya_yakah-**. "The **sphot.a** then is simply the linguistic sign in its aspect of meaning-bearer (**bedeutungstrager**). The term **sphot.a** occurs first in the Maha_bha_s.ya, Na_ges'a ascribed the doctrine to **Sphot.a_yana**, who is quoted by Pa_n.ini (vi.1.123) on a point of morphology... the **sphot.a** (the unchanging substratum) is the word, the sound is merely an attribute of the word. How? Like a drum-beat. When a drum is struck, one drum-beat may travel twenty feet, another thirty, another forty. But the **sphot.a** is of precisely such and such a size, the increase in length is caused by the sound... Patanjali's **sphot.a** (except in so far as it is for him the meaning-bearer) is really comparable to Bharttr.hari's **pra_kr.ta-dhvani**. The commentators, being acquainted with the later theory, naturally point out that the speed of utterance belongs to the **vaikr.ta-dhvani**... Bharttr.hari (**Va_kya-padi_ya** i.44 : **dva_v upa_da_nas'abdes.u s'abdau s'abdavido viduh- eko nimittam. s'abda_na_m aparo'rthe prayujyate** : in meaningful language, linguists recognize two (entites which can be called) words: one is the underlying cause of words, the other is attached to the meaning... The Nya_ya philosophers for example, held that the meaning of a word was presented to the mind by the last sound, aided by the memory-impression of the preceding sounds... **Va_kyapadi_ya i. 75-8**: **sphot.asya_bhinnaka_lasya dhvanika_la_nupa_tinah- grahan.opa_dhibhedena vr.ttibhedam. pracaks.ate; svabha_vabheda_n nityatve hrasva-di_rgha-pluta_dis.u pra_kr.tasya dhvaneh- ka_lah- s'abdasyety upacaryate; varn.asya grahan.e hetuh- pra_kr.to dhvanir is.yate vr.ttibhede nimittatvam. vaikr.tah- pratipadyate; s'abdasyordhvam abhivyakter vr.ttibhede tu vaikr.ta_h- dhvnayah- samupohante sphot.a_tma_ tair na bhidyate**: According to the differences in the specific cause of its comprehension (in individual instances), men attribute differences in speed of utterance (**vr.tti**) to the **sphot.a** which is not divided in time, and merely reflects the time of the sound. Similarly, in the case of the short, long, and prolate vowels-- since, on the view that these are permanent, they are intrinsically distinct-- it is the time-pattern of the primary sound which is metaphorically attributed to the word (the **sphot.a**) itself. The 'primary sound' (**pra_kr.ta-dhvani**) is defined as the cause of the perception of the letters (phonemes), the 'secondary sound' (**vaikr.ta-dhvani**, literally 'modified') is the causal factor underlying differences of diction. But it is only after the word has been revealed that the secondary sounds are presented to the mind as differences of diction; hence (*a fortiori*) the essential nature of the **sphot.a** is not disrupted by these... Ma_dhava's statement : **varn.a_tirikto varn.a_bhivyan:gyo' rthapratya_yako nityah- s'abdah- sphot.a iti tadvido vadanti** may be translated as 'the abiding word which is the conveyor of the meaning... is called the **sphot.a** by the grammarians'..." (Brough, John "Theories of General Linguistics in the Sanskrit Grammarians", *Transactions*

of the Philological Society, pp. 27-46, 1951). The padapa_t.has break down the sam.hita_ into its constituent words; Ya_ska's *Nirukta* studies the meaning of some of such words. Thus the phonetics of a word and its meaning are integral components of Vedic studies. Va_rttika defines a grammatical sentence as **eka-tin.** i.e. possessing one verb. (**Va_kyapadi_ya ii.3**). "The Bha_t.t.a school (of the later Mi_ma_m.sa) on the whole seems to preserve the more primitive attitude. According to them words have in themselves meanings, and as the words are uttered in a sentence, each word performs its task of expressing its meaning, and the sentence is the summation of these meanings. The Pra_bha_kara school, on the other hand, held the more sophisticated theory that the individual words did not express any meaning until they were united together into a sentence. This was upheld by an appeal to the method whereby a child learns its own mother tongue.

They pointed out that it was by hearing sentences 'fetch the cow', 'fetch the horse', and so forth, that the child came gradually to understand that the animal which he saw on each several occasion was, in fact, either a cow or a horse and that the action performed by his elders was the act of fetching. These two views were named respectively **abhihita_nvaya-va_da** and **anvita_bhidha_na-va_da**, terms which are troublesome to translate by concise English expressions. Roughly speaking, the first is the theory that the sentence is 'a series of expressed word-meanings', and the second is that the sentence is 'the expressed meaning of a series (of words)' ... At the beginning of the second book of the **Va_kyapadi_ya**, Bharttr.hari gives a list of definitions and quasi-definitions of a sentence. Five of these are grouped by the commentator under the traditional Mima_m.sa_ designations. Thus the view that the sentence is a unified collection (**sam.gha_ta**) and the view that it is an ordered series (**krama**) are aspects of the **abhihita_nvaya-va_da**; while the other three belong to the **anvita_bhidha_na-va_da**. These are, that the sentence is defined by a verbal expression (**a_khya_ta-s'abda**) or by the first word (**padam a_dyam**) or by all the words taken separately with the feature of mutual requirement or expectancy superadded (**pr.thak sarvapadam. sa_ka_n:ks.am**). All these views, of course, imply the feature of expectancy, and the first and second are to be explained with reference to this feature, since the verb or the first word is only what it is in view of its ties with the other words in its own sentence. All these theories are adversely criticized by Bharttr.hari... The occurrence of homophones in a language has always provided grammarians with an interesting problem... Bharttr.hari gives a list of such factors, of which the most important are **va_kya**, sentence-context, and **prakaran.a**, situational context... historical and comparative studies frequently enable us to glean from texts in related languages useful hints towards this understanding (of meaning)... In the end the utmost that can be said of the meaning of a sentence according to Bharttr.hari is that it is grasped by an instantaneous flash of insight (**pratibha_**)(**Va_kyapadi_ya**, ii.119,145)... And when we have understood a sentence, we cannot explain to another the nature of this understanding. (**Va_kyapadi_ya**, ii.146: **idam. tad iti sa_nyes.am ana_khyeya_ katham.cana : pratya_tmavr.ttisiddha_ sa_ kartra_pi na niru_pyate** : This (**pratibha_**) cannot in any way be explained to others in terms such as 'it is this'; its existence is ratified only in the individual's experience of it, and the experiencer himself cannot describe it)." (Brough, John, "Some Indian Theories of Meaning", *Transactions of the Philological Society*, 1953, pp. 161-176).

There is no supreme language; all languages are personal and social experiences of a community.

Yet, every language is governed by an extraordinary phonetic repertoire orchestrated by 'neuronal laws' of the human brain.

The neuronal structures in which verbal creativity is embedded are the common substratum; they are language-neutral. This means, that irrespective of the language used by a speaker, or the language heard by a listener, the neurons and neuronal networks pulsate, governed by the as-yet undefined semantic laws of neurosciences. Man can create poetry; if the poem has to convey meaning to the audience, the poet has to abandon his search for the 'perfect' language and bow to the superior wisdom of the common parlance which is, in effect, the linguistic social contract for which words are but social memory-markers, or '*numeraire facile*.' The private memory-markers in the private language of a speaker's or listener's brain are the product of his life-history which can be 'emotionally' or 'neuronally' experienced.

No scientific technique is relevant, no language is adequate and no poet is competent to communicate the emotions of the 'private language' of the brain.

IE homeland

The discipline of linguistics created a myth that an early IE homeland existed.

Failed search for an IE homeland

The development of linguistics as a discipline has been significantly advaned by the study of Indo-European (IE) languages. Unfortunately, this advance has not resulted in establishing the Indo-European homeland. The identification of the homeland for Indo-European languages may prove to be an impossible search because there are no texts available for proto-IE and also because there have been enormous interchanges of vocables among ancient languages as will be established, in this work, from a study of proto-Indic languages.

Indo-European languages have a common vocabulary for semantic categories: parts of the body, family relationships and numerals. This very strong semantic evidence led to the postulation of many hypothesis, one of which was a hypothesis that the original homeland of the people speaking the Indo-European languages should have been in Central Asia with migrations westwards towards Europe and southwards towards Iran and India that is Bharat. There have been many speculations concerning the Indo-European language homeland. D'iakonov supports a Balkan homeland. Dolgopolsky proposes a Near East homeland, in central Anatolia. Gamkrelidze and Ivanov place the homeland in Armenia based on Semitic and Kartvelian (South Caucasian) loanwords. Shevoroshkin questions the significance of loan words between north and south Caucasian and shifts the homeland to east Asia Minor. Nichols situates the homeland in Bactria-Sogdiana, to explain the spread of Proto-Indo-European across the steppe. (D'iakonov, I.M., 1990, Language contacts in the Caucasus and the Near East, in: T.L. Markey and J. Greppin, ed., *When Worlds Collide*, Ann Arbor, Karoma, pp. 53-65; Dolgopolsky, Aron, 1990-93, More about the Indo-European Homeland problem, *Mediterranean Language Review*, 6-7, pp. 230-248; Gamkrelidze, Thomas V., and Vjaceslav V. Ivanov, 1995, *The Indo-European and the Indo-Europeans*, Trends in Linguistics Studies and Monographs 80, Berlin, Mouton and Gruyter; Shevoroskin, Vitaly, 1987, Indo-European Homeland and Migrations, *Folio Linguistica Historica*, 7, pp. 227-250; Nichols, Johanna, 1997, Roger Blench and Matthew Spriggs, ed., The epicenter of the Indo-European linguistic spread, in: *Archaeology and Language 1*, London, Routledge, pp. 122-48).

The problem with the determination of a homeland based on loans, assuming geographic proximity is that some loans and re-borrowings may travel far thanks to trade.

Johanna Nichols situates a homeland "well to the east of the Caspian Sea…somewhere in the vicinity of ancient Bactria-Sogdiana." In her map, Proto-Indo-European expands out of the region east of Amu Darya river; first wave covers the region surrounding the Aral Sea and the Iranian plateau. Iranian moves behind this spread. After reaching Caspian, one wave expands to the north, over the Central Asian steppe and westwards to the Black Sea; the second wave circles the southern perimeter and enters Anatolia. Satem spreads partially along the two trajectories. Protoforms of Greek, Illyurian, Anatolian, Armenian, Italic, Celtic and Germanic occur by the 3^{rd} or 2^{nd} millennium BCE, spread from northwest Mesopotamia to south Balkans. (Nichols, Johanna, 1997, Roger Blench and Matthew Spriggs, ed., The epicenter of the Indo-European linguistic spread, in: *Archaeology and Language 1*, London, Routledge, p.134).

Using Nichols' model, it may be suggested that the Indo-Iranian loans into Finno-Ugric occurred when the Iranian spread following the first wave out of Bactria-Sogdiana.

If, as Colin Renfrew suggests, the Indo-European speakers had brought agriculture from Anatolia to Baluchistan as early as in 6000 BCE (Renfrew, Colin, 1987, *Archaeology and Language: The puzzle of Indo-European origins*, London: 178-210 (chapter 8: The early Indo-Iranian languages and their origins), there is no reason to assume a further influx of I-E speakers into Bharat in the second millennium BCE. Such movements of I-E speakers could also have occurred *out of Bharat* and Baluchistan in the second millennium BCE.

For all these models including a model, 'Out of Bharat' (as suggested by SS Misra), archaeological evidence is lacking. "The archaeological lack of evidence for inward migration often cited by proponents of 'Out-of-India' hypothesis would have to be balanced with the lack of archaeological evidence for the presumably much more massive and prolonged outward migration required under this hypothesis." (Hock, Hans Henrich, 1999, Out of India? The linguistic evidence, in: J. Bronkhorst and M. Deshpande, ed., *Aryan and Non-Aryan in South Asia*, Harvard Oriental Series Opera Minora 3, Cambridge, Department of Sanskrit and Indian Studies, Harvard University, pp. 1-18.)

Hock (1996 U Mich conf.) criticized the earlier views of Prof. Misra: `…Indo-Iranian palatalization can only explained if we reconstruct an earlier stage with contrasting e- and a- or a- vowels.

As noted earlier, it is this evidence which provides crucial support for reconstructing Proto-Indo-European with a triple contrast e:a:o and for assuming that the corresponding single a vocalism of Indo-Iranian results from the merger…' (p. 11 in: Bronkhorst and Deshpande, eds., *Aryan and Non-Aryan in South Asia*). [An excursus on this linguistic polemic is provided in the end-note[2].]

There is no archaeological evidence to posit an incoming of 'Aryans' from somewhere in Europe or Central Asia into Bharat. On the contrary, the word, 'aryan' is used only as connoting 'nobility' in the R.gveda, the earliest human document, and there is evidence to point to an outgoing of people from Bharat after the desiccation of River Sarasvati. This migration out of Bharat is exemplified by the claim of some Croatians that they are Sarasvats! The linguistic change in name is explained: Sarasvati > Haraqvaiti > Hravat > Kravat > Croat. The migrations of gypsies out of Bharat in at least two waves has alo been attested during the historical periods.

Indo-European Problem

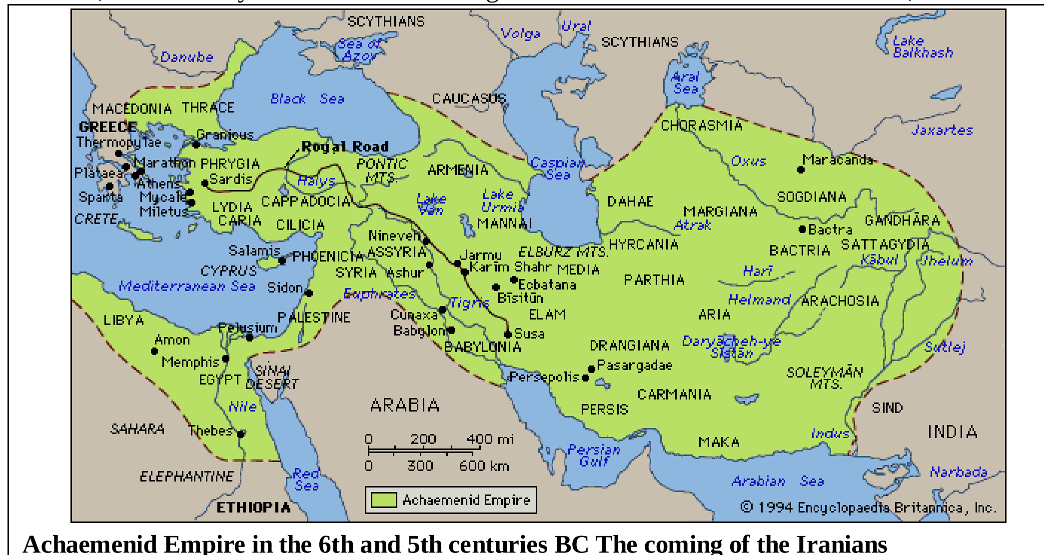
Study of the origins and dispersals of and continuity and discontinuity among peoples speaking Proto-Indo-European language(s) or dialects, has engaged a number of scholars over a hundred and fifty years, since 1850. Two major methods used in the study are drawn from the two disciplines of archaeology and language.

Archaeological method and linguistic method have been based on a number of theoretical assumptions which result in differences in interpretations of data.

The Indo-European language problem is simply one of explaining borrowings from Proto-Bharatiya languages positing a series of movements out of Bharat, as the braziers of the civilization started their search for minerals and metals and for creating new alloys to progress the inventions of the Bronze Age. This search led them far and wide into Mesopotamia, into Central Asia and into Europe.

"Though isolated groups of speakers of Indo-European languages had appeared and disappeared in western Iran in the 2nd millennium BC, it was during the Iron Age that the Indo-European Iranians rose to be the dominant force on the plateau. By the mid-9th century BC, two major groups of Iranians appear in cuneiform sources: the Medes and the Persians. Of the two, the Medes were the more widespread and, from an Assyrian point of view, the more important group. When Assyrian armies raided as far east as modern Hamadan, they found only Medes. In the more western Zagros, they encountered Medes mixed with indigenous, non-Iranian peoples. Early in the 1st millennium, Iranian Medes already controlled almost all of the eastern Zagros and were infiltrating, if not actually pushing steadily, into the western Zagros, in some areas right up to the edge of the plateau and to the borders of lowland Mesopotamia. Persians (Parsua, Parsuash, Parsumash) also appear in roughly the same areas, though their exact location remains controversial.

At times they seem to have settled in the north near Lake Urmia, at times in the central western Zagros near Kermanshah, later certainly in the southwestern Zagros somewhere near the borders of Elam, and



Achaemenid Empire in the 6th and 5th centuries BC The coming of the Iranians

eventually, of course, in the province of Fars. It has been argued that these various locations represent a nomadic tribe on the move; more likely they represent more than one group of Persians. What is reasonably clear from the cuneiform sources is that these Medes and Persians (and no doubt other Iranian peoples not identified by name) were moving into western Iran from the east. They probably followed routes along the southern face of the Elburz Mountains and, as they entered the Zagros, spread out to the northwest and southeast following the natural topography of the mountains. Where they could, as, for example, along the major pass across the mountains from Hamadan to Kermanshah, they infiltrated farther west. In doing so, they met resistance from the local settled populations, who often appealed to Urartu, Assyria, and Elam for assistance in holding back the newcomers. Such appeals were, of course, most welcome to the great powers, who were willing to take advantage of the situation both to advance their interests at each other's expense and to control the Iranian threat to themselves. It has been suggested that the introduction of gray and gray-black pottery into western Iran from the northeast, which signals the start of the Iron Age, is the archaeological manifestation of this pattern of a gradual movement of Iranians from east to west. The case is by no means proved but is a reasonable reading of the combined evidence. If it is so, then the earliest Iranians in the Zagros can be dated to Iron Age I times, about 1300 BC."
http://www.britanica.com/bcom/eb/article/1/0,5716,109311+10+106325,00.html

The earliest evidence for an Indic language is found not in India but in the Tigris-Euphrates doab, ca. 1600 BCE. (Of course, the decoding of the script contained in epigraphs of the civilization will push the evidence of written indic words to ca. 3500 BCE). Neighbouring the Tigris-Euphrates doab was the empire of Mitanni, extending from the shores of the Mediterranean to the Zagros mountains, in conflict with the Hittites in the west and with the Egyptians in the southwest for the control of the Euphrates river. The language of Mitanni was Hurrian; there is, however, a clear evidence of the use of Indic cultural vocabulary in the Mitanni documents.

his'uwa festival of the Hurrians (similar to the vis-uwa in ancient India to celebrate the solstice?)

"We are told that the chief scribes of UR.MAH.LU, already mentioned as a member of one of these (scribal) families, received orders from queen Puduhepa to search for tablets of Kizzuwatna and produced copies of the ritual for the *his'uwa* festival as a result...There is a great number of Hurrian gods mentioned in Hittite texts, and many of these are descriptions of cult festivals. Since most texts are fragmentary and, therefore, cannot be dated exactly, we only pick a few significant examples. The texts for the *his'uwa* festival have just been mentioned. Most revealing is a prayer of king Muwatalli. Already in the invocation of the main gods at the

beginning of the text, Hebat occurs. The king then asks the bull S'eris' to intercede for him, and calls him 'Bull of the Weathergod of Hatti', which means that this Hurrian bull had entered the circle of the gods of the capital." (Guterbock, H.G., The Hurrian Element in the Hittite Empire, in: Hoffner, Jr., Harry A. (ed.), *Perspectives on Hittite CIvilization: selected writings of Hans Gustav Guterbock*, Chicago, Oriental Institute of the University of Chicago, 1997)

ila_ni Mi-it-ra as'-s'i-il ila_ni U-ru wa.na-as's'i-el (in another text A.ru-na-as'.s'i-il) in.dar (other text: In-da.ra) ila_ni na-s'a-at-ti-ya-an-na (cf. Winckler, *Mitteilungen der Deutschen Orient-Gesellschaft* No. 35, 1907, p. 51, s. *Boghazkoi-Studien VIII*, Leipzig 1923, pp. 32 f., 54 f.)

All the four treaty gods: *Mitra*, *Varun.a*, *Indra* and *Na_satya*, are mentioned in one hymn of the Rigveda (RV. 10.125.1) and are individually referred to in many other r.ca-s.

P. Thieme demonstrated that the gods of the Mitanni treaties are specifically Vedic divinities, and that they cannot be Proto-Aryan. Macdonnel is more emphatic: "It is a fact, however, that this particular grouping of the gods Varun.a and Mitra, Indra and Na_satyau, with these forms of their names, can be traced *only in the Veda*. For this reason I agree with Jacobi, Konow and Hillebrandt in considering these gods to be *Indian, Vedic* deities and that there is no possible justification for any other view. We shall have to assume that, just as there were Aryan immigrations into India from the west, there must have been isolated migrations back to the west." (Macdonnel, opcit, 1927, p. 805).

References to Varun.a and Mitra in a treaty can be related to interpretations of Varun.a and Mitra as personifications of True-Speech and of Contract. Using Avestic evidence, Meillet (J As., juillet-aout 1907, 143 ff.) established the original nature of divinity Mitra/Mithra as the personified Contract/Treaty. Vedic *mitradruh* means 'belying the treaty (the contractual word). Mitra as the divinity of the contract is also noted in a Middle Iranian source, the Sogdian version of the Vessantara Ja_taka....RV.IX.90.5 is read thus:

matsi soma varun.am matsi mitram matsi_ndram

Oh Soma, exhilarate (Divinity) True-Speech (Varun.a), exhilarate (Divinity) Contract (Mitra), exhilarate Indra...(and thereby make them fit to exercise their functions). (Paul Thieme, Remarks on the Avestan Hymn to Mithra, in: *BSOAS*, Vol. XXIII, Part 2, 1960, pp. 265-274).

Mitanni treaty archaeologically dated to sixteenth century BCE provides evidence for Indo-Aryan language. The terms used could be Vedic forms more ancient than the 2nd millennium BCE. Chronology of *Avesta* is based on the same Indo-Aryan migrations which are sought to explain Rigveda and other ancient Vedic texts. Gonda notes: “besides the uncertain date of the *Avesta*, the cases of cultural, stylistic and lexicographical parallelism between texts of this description do not necessarily point to simultaneity.” (Gonda, Jan, 1975, *Vedic* Literature, Vol. 1 of Jan Gonda, ed., *A History of Indian Literature,* Weisbaden, Otto Harrassowitz, p. 21).

Wheel, ratha

Anthony notes that the words for ‘wheel’, ‘axle’, ‘thill’, ‘convey in a vehicle’ have been reconstructed in PIE and matching with the knowledge of wheeled technology known in Europe and Near East (ca. 3300 to 3100 BCE), PIE dispersal might have occurred no earlier than ca. 3300 BCE. (Anthony, David W., 1995, Birth of the chariot, *Archaeology* 48, no. 2, pp. 36-41.) This argument is questionable, as D’iakonov notes that “some processes in which rotating was required were known to mankind since Palaeolithic times, and we do not necessarily have to associate them with the wheel; and it has yet to be clarified if the terms for ‘wheel, chariot’ were not used in an earlier period for ‘potter’s wheel’”. (D’iakonov, I.M., 1985, On the original home of the speakers of Indo-European, *Journal of Indo-European* Studies, 13, nos. 1-2, p.113).

It has not been possible to reconstruct words for items such as copper, horse and wheeled vehicles in Anatolian languages, thus positing that the words do not belong to Proto-Indo-European, but belong to a post-

Hittite Indo-European. There is also a more intractable problem of determining the rate of change in languages. “What has always filled me with wonder is the assurance with which many historical linguists assign a date to their reconstructed proto-language…We are told that proto-Indo-European was spoken about 6,000 years ago. What is known with a fair degree of certainty is the time between proto-Indo-Aryan and the modern Indo-Aryan languages – something in the order of 3,000 years. But how can anyone tell that the development from proto-Indo-European to proto-Indo-Aryan took another 3,000 years?…Languages are known to change at different rates. There is no way of knowing how long it took to go from the presumed homogeneity of proto-Indo-European to the linguistic diversity of proto-Indo-Iranian, proto-Celtic, proto-Germanic, etc. The changes could have been rapid or slow. We simply don’t know…Why couldn’t proto-Indo-European have been spoken about 10,500 years ago?…The received opinion of a date of around 6000 BP for proto-Indo-European…is an ingrained one. I have found this a difficult matter to get specialists to even discuss. Yet it does seem to be a house of cards.” (Dixon, R.M.W., 1997, *The Rise and Fall of Languages*, Cambridge, Cambridge University Press, pp. 47-49).

Iron

ayas metal, iron (RV.); **ayo_, aya** iron (Pali); aya (Pkt.); ya (Si.)(CDIAL 590). yakad.a iron (Si.)(CDIAL 591). yakul.a, yavul.a sledge-hammer (Si.); ayo_ku_t.a, ayaku_t.a (Pkt.)(CDIAL 592). **ayas'cu_rn.a** powder prepared from iron as a vermifuge (Sus'r.); yahun.u iron filings (Si.)(CDIAL 489).

In Sarasvati-Sindhu valley archaeological sites, iron objects have been found from 2600 BCE (Possehl, G.L., and Gullapalli, P., 1999, The early iron age in South Asia, in: V. Pigott, ed., *The Archaeometallurgy of the Asian Old World*, Philadelphia, The University Museum Monograph 89, MASCA Research Papers on Science and Archaeology, Volume 16, University of Pennsylvania, pp. 159-161). Iron ore has been attested in eight sites together with some items of everyday use, made of iron. It is unclear if the iron items were smelted: “None has been analyzed to determine their technical properties and we do not know which of them is meteoric and which (if any) were smelted.” (Possehl, G.L., and Gullapalli, P., 1999, opcit.) Five iron items (dated ca. 2600 to 2100 BCE), including a copper/bronze bell with an iron clapper, two iron ‘buttons’ on a copper/bronze rod, an iron button on a copper/bronze mirror, and two lumps of ‘carbonates of iron’ were found in Mundigak. At Said Qala Tepe, ‘ferrous lumps’ were found (dated to ca. 2700 to 2300 BCE); at Ahar two iron arrow heads were found (dated to ca. 1275 BCE); at Chanhu-daro an ‘iron artifact’ is reported; at Mohenjo-daro, lollingite, an iron bearing mineral which may have been used in copper smelting has been found; at Lothal was found a fragmentary piece of metal (dated to ca. 2500 to 1800 BCE); in Swat valley at Katelai Graveyard, a piece of iron was found (dated to ca. 1500-1800). (Possehl, G.L., and Gullapalli, P., 1999, opcit., p. 159). Smelted iron occurs in a number of places, including the Deccan between the thirteenth to tenth century BCE. (Chakrabarti, D.K., 1997, *Colonial Indology: The sociopolitics of the ancient Indian past*, New Delhi, Munshiram Manoharlal). *Atharvaveda* (11,3,7) refers to blood as *lohita*, ‘red copper,’ and to a swarthy (black) metal as s’ya_ma comparing it to *ma_msa*, ‘flesh’. This metaphor of blood (red) and flesh (black) is an apparent distinction made between copper (*lohita*) and blackened copper (*s’ya_ma*). *S’ya_ma* or *ka_rs.n.a_yasa*, *kr.s.n.a_yasa* in ancient texts (AV 11,3,7; 9,5,4; S’Br.: *kr.s.n.a ayas*, ‘black metal’) could be a reference to copper which is heated and cooled to obtain hardened, blackened copper. Copper is similarly blackened due to oxidation with sulfides. (Hughes, R. and Rowe, M., 1982, *The colouring, bronzing and patination of metals*, Oxford, Arts Council, p. 92, p. 187). Some scholars also argue that the word for iron exists in the Rigveda. (Thieme, P.,1958, Review of ‘Dictionnaire etymologique du proto-indo-european’, by Albert Carnoy, *Language*, 34, pp. 510-515; Mehendale, M.A., 1978-79, Prof. Thieme’s etymology of Skt. *asi* and its bearing on the Iron-Age in India, *Puratattva*, 10, pp. 79-80) refer to the term *asi*, ‘knife’ (Latin *ensis*, ‘iron sword’; Greek *asis*, ‘mud’ < **n.si* ‘black’). Thus **asi* in Proto-Indo-Aryan might have connoted ‘black’.) Based on such linguistic analysis, the use of the word, *ayas* in the Rigveda may be interpreted as a reference to metal, in general. A remarkable concordance is found in the word for iron in different dialects of Baluchi; the word is *a_sin/a_hin/a_in*. (Elfenbein, J.H., 1966, *The Baluchi Language: A dialectology with texts*, London, Royal Asiatic Society of Great Britain and Ireland, p. 9, p. 19). It would be erroneous to assume that the term, *kr.s.n.a ayas* refers to smelted iron. It may simply mean black metal. Dolgopolsky notes that *ayes originally referred to metal in Proto-Indo-European times, and that the word was transferred to bronze when the Indo-

Europeans started using bronze widely. (Dolgopolsky, Aron, 1990-93, More about the Indo-European Homeland problem, *Mediterranean Language Review*, 6-7, pp. 230-248).

Meaning of *pur* in Rigveda

The word *pur* occurs about 30 times in the Rigveda, excluding compounds such as *pu_rbhid* and *puramdara*. In *Dha_tupa_t.ha*, there is a root *pr.*_ explained as pa_lanapu_ran.ayoh, 'protecting and filling'. Greek polis, Lithuanian pilis meaning 'town, fort' are considered cognate with this word. In RV 8,1,28 the phrase, caris.n.u pur is interpreted as 'mobile'; K. Geldner equates it with wandelnde Burg 'mobile/mutable town/fort' or a die zauberburg 'the magical Burg'. (Geldner, K.F., 1951-7, Der Rig-Veda, vols 33-36, HOS, Cambridge, Massachusetts.) Similarly Agastya's prayer (RV 1,166,8) for *s'atabhujibhih pu_rbhih* is interpreted as 'with hundred-fold *pur*s', a metaphorical reference to a structure with hundred walls or folds or encirclements. RV 6,48,8: *s'atam pu_rbhih*, '(protected with) a hundred *pur*s'; RV 2,4,6: Indra crushes 100 *pur*s of s'ambara; and RV 4,27,1: *a_yasi pur*, 'pur of metal (to raks., guard, the celestial Eagle)'; here, the pur are in the womb, *garbhe*. The metaphor is clearly the imprisonment of the Eagle in metal *pur*. The term, *a_yasi pur* is translated by Geldner as 'hundert eherne Burgen (100 bronze Burgs)', connected with demons (*da_monen*). In RV 1,189,2 Agni is implored to become *pur*; the word is interpreted as 'wide, broad and extensive'. There is also a reference to *s'a_radi_ pur* (autumnal forts of da_sa with *mr.dhrava_c*; 7 such forts were broken by Indra (RV 1,174,2; RV 6,20,10). Rau's work refers to the 'siege of forts' in post-rigvedic texts involving the use of fire (RV 7,5,3) to rend down (*darayan*), the pur. (Rau, W., 1976, *The meaning of pur in Vedic literature*, Munchen, W. Finck.) Rau noted that Da_sa had circular forts (called *pur*) with concentric walls; these forts were not regularly inhabited cities but only functioned as temporary shelters.

"The evidence to be gleaned from the foregoing Vedic passages… does not fit the cities of the Indus civilization. It rather suggests the existence of numerous, frequently concentric, mud or stone ramparts of round or oval ground-plan, -- many times hastily erected – and reinforced by wooden defences, enclosing thatched timber sheds to serve at best as temporary homes but more often to shelter men and their cattle in times of war, water supply and provisions being, therefore, of vital importance. We are not surprised, but would actually expect, to find no traces of such structures remaining in our days. – Towns, -- not cities --, are mentioned first at the very end of the Vedic period. Not a word is said in our texts of the characteristic features of the Indus cities, of brick walls, brick houses, brick-paved streets laid out on an orthogonal pattern, of granaries or public baths. No statement in Vedic literature prompts us to assume 'an unidentified but formidable civilization… [which] presented an extensive fortified front to the invaders.;" (Rau 1976: 52).

Rau's account simply demonstrates that Vedic accounts of *pur* (as fort) pre-date Sarasvati civilization and that the description of towns and forts described as 'temporary shelters' DO NOT match those of BMAC! Rau may have erred in interpreting *s'a_rada* in RV 6.20.10 as a reference to hastily erected forts; the term simply may refer to the forts constructed in the autumn. Purukutsa (father of Trasadasyu) broke seven autumnal forts of the enemy. (RV 1.63.7; 1.174.2; 6.20.10). Suda_sa (descendant of Divoda_sa) fought Da_sa S'ambara who possessed ninety-nine forts: **puru_n.i yas' cyautna_ s'ambarasya vi navatim nava ca dehyo** han [RV 6.47.2: '(he) who (has done) many shattering deeds, who has destroyed S'ambara's ninety-nine mud ramparts.'] Such mad ramparts are found on Sarasvati Civilization sites and not in BMAC settlements!

Asko Parpola links this textual explanation with the citadel of Dashly-3 in North Afghanistan and seeks it as a parallel to the tripura of Asura (S'Br. 6,3,3,24-25) (Parpola, Asko, 1985, The Sky-Garment: A study of the Harappan religion and its relation to the Mesopotamian and later-Indian religions, Helsinki, *Studia Orientalia* 57, 75f. and fig. 22; Parpola, Asko, 1988, The coming of the Aryans to Iran and India and the cultural identity of the Da_sas, *Studia Orientalia* 64: 195-302 and figs. 11-12.) Parpola also notes that the citadels of Bactria and Margiana have yielded large numbers of animal bones, and in Togolok-21 (belonging to the later phase, circa 1750 BCE), vessels with residues of Ephedra (i.e. *Sauma) have been found. (Sarianidi, Viktor, 1990, *Drevnosti strany* Margush, Askhabad, 102 ff. and 203 ff. Botanical identity of *sauma in Falk, Harry, 1987, Soma I and II, *Bulletin of the School of Oriental and African Studies*, 52 (1): 77-90 and Nyberg, Harri, in press, The problem of the Aryans and the Soma: Botanical aspects. In: George Erdosy (ed.), *Ethnicity in ancient South Asia*.)

According to *Aitareya Bra_hman.a* (1,23), Asuras made the earth a copper/bronze (ayasmayi_) pur, made the antariks.a a silver (rajata_) pur and made the sky a golden (harin.i_) *pur*. Purs are possessed by Cumuri, Dhuni, Pipru, S'ambara, S'us.n.a, Vala, Namuci and Van:gr.da (RV 6,18,5; 1,53,7-8; 6,16,39; 7,5,3; 10,46,5). *Taittiri_Ya Sam.hita_* (6,2,3) also refers to these three *pur*s of copper, silver and gold possessed by asuras and which were rent by Rudra with an arrow of Agni, Soma and Vis.n.u. *Aitareya Bra_hman.a* (2,11) notes that devas placed three *purs agnimayi_*, 'made of Agni' around the *yu_pa* to protect the yajn~a. Rigveda (RV 4,30,20) refers to *as'manmayi_ pur* (i.e. *pur* of stone), hundred of which were overthrown by Indra to benefit Divoda_sa. In the context of pouring of Soma, RV (10,101.8) prays to Vis'vedeva_ to 'make (kr.n.udhvam) inviolable metal *pur*s'. Sarasvati the river is called a metal *pur* as a secure defence (dharun.a) (RV 8,95,1). In RV 8,100,8, suparn.a, the eagle, pierced the metal *pur* with the speed of mind and flew away to heaven to fetch soma for Indra who wields the vajra.

RV 2,35 refers to *a_ma_su pu_rs.u parah* in the context of protecting the *apa_m napa_t*, the offspring of waters. This could be a reference to the protection with divine powers (*pu_rs.u*) or protection of apa_m napa_t, by creating encirclements (*pur*) of raw earth.

Hock considers that there is insufficient evidence to posit a Dravidian origin of some special features in Vedic and Indo-Aryan. On the contrary, he notes that there is clear evidence for early contact with Munda.

In the course of cracking the code of the writing system of Sarasvati civilization, it will be demonstrated that there is substantial evidence to posit a substratum mleccha which has enriched Dravidian, Indo-Aryan and Munda dialects right from the 3rd millennium BCE.

Language and Archaeology

Panchajanya: language of the five peoples of Bharat



Krishna blowing the Panchajanya s'ankha, Kurukshetra war

The sound of panchajanya s'ankha is symbolic of the sounds of the language spoken by the five peoples of Bharat. This language can be unraveled using the epigraphs of the Bharatiya civilization.

Bhima killed 'As'vattha_ma', the elephant. Dron.a was struck with grief. Drona asked Yudhisthira if that was true. Yudhisthira said, Ashvatthama is killed; "elephant, not the man" he added in a low voice and the last phrase was not heard, was lost in the loud *om-ka_ra* (sound of *om*) generated by the blowing of the conch of Krishna, Panchajanya.

Panchajanya lit. means 'of the five people', i.e. of all the five peoples, all the Bha_ratiya-s who lived in a civilization area of 1.25 million sq. kms. covering the regions of present-day Afghanistan, Pakistan and north-west Bharat. This shows the importance of s'ankha industry in the Sarasvati Civilization. This also shows that the s'ankha was an industry in which all the peoples of Bharat were engaged. The five people are referred to as Bha_ratam Janam by Vis'vamitra Gathina in the Rigveda. The continuity of the culture from the Sarasvati (Bharatiya) Civilization into the historical periods of Bharat has been attested by archaeological discoveries.

Students of Archaeology and Language

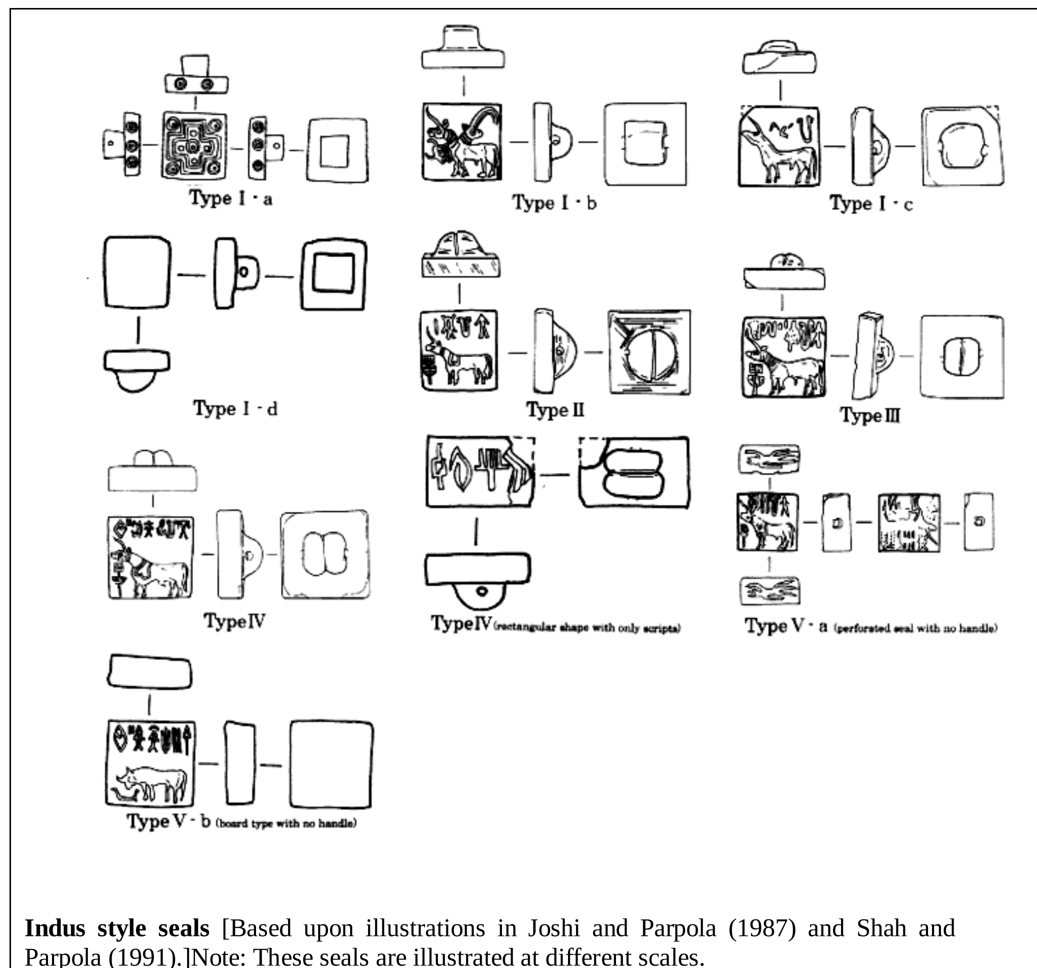
It is apposite to echo the views of Schrader who attempted a study of languages in the context of archaeological finds, to serve as an introduction to this analysis on the language of Sarasvati Sindhu Valley Civilization:

"As the archaeologist armed with pick and shovel, descends into the depths of the earth, in order to trace the footsteps of the past in bone and stone-remains, so the student of language-- washed on the shore of history from ages immeasurably remote-- to reconstruct the picture of the primeval age... (Evolving a new method called the 'Comparative Antiquities')... It is on this triple basis that the present work is founded, being designed as a comprehensive account of what we know at present about the pre-historic period..." Schrader, O., *Pre-historic Antiquities of the Aryan Peoples*, 1890, Translation by Jevons, F.B.,from German Sprachvergleichung und Urgeschichte, 1890 (From the Author's Preface to the English Translation, p. iii-iv).

Archaeology of Sarasvati Civilization has unearthed many objects. Many of these objects contain glyphs which provide a glimpse into the evolution of glyphs which last into the historical periods of Bharat.

No evidence to establish genetic links between Aryan and Indo-European languages

Jim Shaffer and Diane Lichtenstein (1999), emphasise that there is absolutely no archeaological indication of an Aryan immigration into northwestern India during or after the decline of the Harappan urban society. This view is reiterated by Indian archaeologists (e.g. Rao 1992, Lal 1998). Arguments are stretched, by some indologists, to explain the absence of archaeological evidence for immigations into northwestern Bharat: "We have found that the nature of material residues and the units of analysis in archaeology do not match or fit the phenomenon we wish to investigate, viz. Aryan migrations. The problem is exacerbated by the strong possibility that simultaneous with migrations out of Eurasia there were expansions out of established centres by metallurgists/prospectors. Last, when we investigate pastoral land use in the Eurasian steppe, we can make informed inferences about the nature of Aryan emigration thence, which is a kind of movement very unlikely to have had artefactual correlates." (Shireen Ratnagar, 1999:234)



Indus style seals [Based upon illustrations in Joshi and Parpola (1987) and Shah and Parpola (1991).]Note: These seals are illustrated at different scales.

http://bosei.cc.u-tokai.ac.jp/~indus/english/thesis01e-fg01.html

Considering that the epigraphs of Sarasvati Civilization are dated between 3300 BCE (the early potsherd with writing found at Harappa) to 1400 BCE (the 'jar' seal found at Daimabad), the remarkable stability of the writing system in a vast area is concordant with the remarkable stability of the dialects which can be traced in a continuum from the substratum languages evidenced in lexemes of Bharatiya languages such as Nahali, Gujarati, Kannada, Telugu. Masao Noguchi of Tokai University, Japan has provided a typological analysis of the handles of square seals mostly from Harappa and Mohenjodaro to unravel a chronological sequence. He

echoes the views of Bisht who notes that Type Ib seals with no 'signs' but only 'mythological scene, an animal, or a structure motif' have been found in layers pre-dating the Sarasvati Civilization in the excavations at Dholavira. He also notes a westward spread of the cultural styles evidenced by the seals and adds that "some Central Asian cultural elements spread westward from Baluchistan, and one of these elements appeared in the "Central Asian style" seal (Gotoh 1999) in the western area of the Indus plain during the Mehrgarh VII period." http://bosei.cc.u-tokai.ac.jp/~indus/english/thesis01e.html (March, 2003).

The epigraphs point to a westward movement of Bharatiya into BMAC region apart from trade contacts across the Persian Gulf with the Mesopotamian region.

What guidance can linguistics provide in resolving the language(s) of the civilization, circa 5500 years Before Present? What linguistic studies should be undertaken in relation to the history of the alluvial plain, piedmont and maritime zones close to the archaeological sites of the civilization?

The terms used by linguists in categorizing chronology of language evolution and language changes in the region, are:

- Proto-Indo-Aryan (Common ancestor of all Indo-Aryan languages including Vedic, Sanskrit and all the Prakrits)
- Pre-Vedic Indic (Any stage in the development of Indo-Aryan more ancient than Vedic)
- Pre-Indo-Aryan substrate (Any ancient non-indo-aryan language of India replaced or absorbed by Indo-Aryan).

When the linguists of Bharat refer to 'Prakrits', they are, indeed, referring to Proto-Indo-Aryan which was later refined and organized with grammatical rules (exemplied by Pa_n.ini's grammar, *As.t.a_dhya_yi*) into Samskr.tam.

To state that people arriving (if at all) from Bactria-Margiana Archaeological Complex – BMAC -- (say, proto-Indo-Iranian speakers) influenced the languages of the region, will be chronologically incongruous, because we are searching for a language or language(s) of much earlier periods starting from the 4th millennium BCE.

Proto-Indo-European (PIE) is accessible indirectly via its (very numerous and well-documented) offspring. The old pre-Aryan languages of India have died out leaving only substratal traces in Indo-Aryan. They cannot be reconstructed from such data, though some useful information about their structure and vocabulary can be extracted from loanword studies. That's all until somebody cracks the Indus Valley writing system.

The civilization sites are dated to between ca. 3500 to 1500 BCE. What languages could have been spoken by the settlers in Lothal, Surkotada, Dholavira, Kotdiji, Kalibangan, Rakhigarhi, Ropar? These are settlements which seemed to have a way of communicating with one another using distinctively unique and clearly identifiable glyphs on epigraphs. There are also indications that some Meluhhan colonies were established in Mesopotamia.

The archaeological evidence, which has a bearing on the search for language(s) of the civilization, is summed up succinctly by Kenoyer: "The origins of the Indus urban society can be traced to the socio-economic interaction systems and settlement patterns of the indigenous village cultures of the alluvial plain and piedmont. More importantly, the factors leading to this transformation appear to be autochthonous and not derived from direct stimulus or diffusion from West or Central Asia." (Kenoyer, J.M., 1991, Urban process in the Indus traditon. A preliminary model from Harappa, in: Richard H. Meadow ed., *Harappan excavations 1986-1990*, Madison, Wisconsin: Prehistory, p. 11).

Another archaeologist, Allchin observes that this indigenously evolved village culture continued into historical periods in Bharat: "The Indus legacy survived and was passed on more widely at the fold and village level, in

almost all regions, while the learned tradition mainly survived in the Panjab, whence it spread eastwards with the spread of settlements in Post-Harappan times. The surviving tradition, an amalgam of Indus and Aryan elements was already active before the re-emergence of cities in the Ganges valley and in North India more generally during the first millennium B.C>, and served as the ideological basis upon which the cities produced their own distinctive ideology."(F.R. Allchin, 1982, On the legacy of the Indus civilization, in: Gregory L. Possehl, ed., *Harappan Civilization: A contemporary perspective*, Warminster, pp. 325-333).

Should we start with Zide rejecting Sanskrit as "completely inadmissible on the grounds of chronological incongruity...and so is immediately discredited." (Arlene R.K. Zide, 1979, A brief survey of work to date on the Indus Script, in: Gregory L. Possehl, ed., *Ancient Cities of the Indus*, Durham, Carolina Academic Press).

David W. Anthony (1991:201-202) argues in favour of Proto-Indo-European (PIE) linguistics: "It is true that we can only work with relatively late IE daughter languages, that we cannot hope to capture the full variability of PIE, and that reconstructed semantic fields are more reliable than single terms. It is also true that both the reconstructed terms and their meanings are theories derived from systematic correspondences observed among the daughter IE languages; no PIE term is known with absolute certainty. Nevertheless, the rules that guide phonetic (and to a lesser extent, semantic) reconstruction are more rigorous, have been more intensely tested, and rest upon a more secure theoretical foundation than most of the rules that guide interpretation in my own field of prehistoric archaeology. Well-documented linguistic reconstructions of PIE are in many cases more reliable than well-documented archaeological interpretations of Copper Age material remains." N.R. Waradpande (1989:19-21), however, argues that "the linguists have not been able to establish that the similarities in the Aryan or Indo-European languages are genetic, i.e. due to their having a common ancestry". He also (1993:14-15) alleges that "the view that the South-Indian languages have an origin different from that of the North-Indian languages is based on irresponsible, ignorant and motivated utterances of a missionary" (an apparent reference to the 19th century Bishop Robert Caldwell).

Palatalization

Palatalization transforms velars (*k*,*g*) into palatals (*c*,*j*); thus, the velar or "kentum" forms are considered to be the original and the palatal or "satem" forms the evolved variants. Palatalization and substratal borrowings are used as evidence to explain how Sanskrit has evolved from PIE: Skt. *jagâma* from PIE **gegoma* as a palatalization of the initial velar (before *e/i*) followed by the conflation of *a/e/o* to *a*, but the reverse is almost impossible: palatalization is a one-way process, attested in numerous languages on all continents (including English, e.g. *wicca* > *witch*). Similarly, kentum forms and the forms with differentiated vowels as attested in Greek represent the original situation, while the Sanskrit forms are explained as an innovation. Sanskrit is, however, among the oldest forms of PIE: "The distribution [of the two stems *as/s* for "to be"] in Sanskrit is the oldest one" (Beekes 1990:37); "PIE had 8 cases, which Sanskrit still has" (Beekes 1990:122); "PIE had no definite article. That is also true for Sanskrit and Latin, and still for Russian. Other languages developed one" (Beekes 1990:125); "[For the declensions] we ought to reconstruct the Proto-Indo-Iranian first,... But we will do with the Sanskrit because we know that it has preserved the essential information of the Proto-Indo-Iranian" (Beekes 1990:148); "While the accentuation systems of the other languages indicate a total rupture, Sanskrit, and to a lesser extent Greek, seem to continue the original IE situation" (Beekes 1990:187); "The root aorist... is still frequent in Indo-Iranian, appears sporadically in Greek and Armenian, and has disappeared elsewhere" (Beekes 1990:279).

Territories with kentum are not necessarily the original homeland. Dialects which expanded early into Europe, Anatolia and China, might have retained the kentum form while taking it to the IE borderlands. The later emigrant dialects (Armenian, Iranian) might have adopted the satem forms. Those areas where the speakers of Indo-Aryan languages stayed behind and who adopted the satem forms could as well be the homeland. German linguist Claus Peter Zoller (1987, 1988, 1989) suggests that a kentum form is present in Bharat in a Himalayan language called Proto-Bangani which uses *koto* 'hundred'. George van Driem and Suhnu R. Sharma (1996) tried to discredit Zoller's discovery; but, Anvita Abbi (1998) and her students have proved that Zoller's thesis is confirmed by local evidence of substratum words of Bangani.

Hittite was considered a language with features older than those found in Sanskrit among IE dialects. Hittite had a common gender, while Sanskrit differentiated between masculine and feminine genders. Hittite had laryngeals. Other IE languages retain only traces: e.g. Greek *odont-*, "tooth", shows trace of an initial H-; this initial was lost in Latin to yield *dent-*. Greek *anêr*, "man", is derived from **Hnr*, whereas Sanskrit has *nr/nara*; Sanskrit preserves the laryngeal only in the form of vowel-lengthening in a prefix, as in *sû-nara* from *su* + **Hnara*. Traces of an original laryngeal consonant occur to mark a second syllable which was later contracted with the preceding syllable: "In Indo-Iranian such forms are often still disyllabic in the oldest poetry: *bhâs*, 'light', = */bhaas/* < */bheH-os/*." (Beekes 1990:180) The laryngeal yielded the three vowels a/e/o, whose representatives in the Greek alphabet happen to be derived from the three more or less laryngeal consonants in Northwest-Semitic: *aleph*, *he* and *ayn*. 'The laryngeal theory has been attacked by both OIT and mainstream circles. Misra (1992:21) claims to have "refuted" it, Décsy (1991:17) calls it "the infamous laryngeal theory". When scholars claim proof of the laryngeals in Caucasian loan-words from IE, Décsy (1992:14, w.ref. to Wagner 1984) counters that it is the other way around: "Hittite lost its Indo-European character and acquired a large number of Caucasian areal features in Anatolia. These Caucasian-type features can not be regarded as ancient characteristics of the entire PIE". Likewise Jonsson (1978:86), though accepting that the laryngeals may offer a "more elegant explanation of certain cases of hiatus in Vedic, of certain suffixal *î*'s, *û*'s", presents as "an acceptable alternative" the scenario that the laryngeal in IE-inherited Anatolian words "comes from the unknown non-IE language or languages that are responsible for the major part of the [Anatolian] vocabulary".' (Koenraad Elst, *Linguistic aspects of the Aryan non-invasion theory*)

This feature of Hittite does not however, make it to be the *Urheimat.* Hittite could also be an early emigrant language from a homeland located elsewhere.

Dialect distribution in IE family

Hans Hock, explains (1999:13) that "the early Indo-European languages exhibit linguistic alignments which cannot be captured by a tree diagram, but which require a dialectological approach that maps out a set of intersecting 'isoglosses' which define areas with shared features (...) While there may be disagreements on some of the details, Indo-Europeanists agree that these relationships reflect a stage at which the different Indo-European languages were still just dialects of the ancestral language and as such interacted with each other in the same way as the dialects of modern languages."

Isoglosses are linguistic changes which are common to several languages.

Isoglosses were either imparted by one language to its sisters, or jointly inherited or adopted it from a common source.

Greek, Armenian, Iranian, some Dardic and western Indo-Aryan languages, evidence the shift *s* > *h*, e.g. Latin *septem* corresponding to Greek *hepta*, Iranian *hafta*. In the same group, plus the remaining Indo-Aryan languages, preterits are used: Greek *e-phere*, Sanskrit *a-bharat*, "he/she/it carried".

This group itself is not homogenous; separate developments occur due to interactions with non-member languages. Best known is the *kentum/satem* divide: Greek belongs to the kentum group, while Armenian and Indo-Iranian (together with Baltic and Slavic) have the satem isogloss (and the related "*ruki* rule", changing *s* to *sh* after *r, u, k, i*).

Kentum languages are in a continuous belt from Anatolia through southern to western and northern Europe (with exceptions, viz. Tocharian and proto-Bangani), and the satem isogloss are in a belt from central Europe to India, only later fragmented by the intrusion of Turkic.

Hock provides (1999:15) a map showing ten isoglosses in their distribution over the geographically placed IE language groups: "What is interesting, and significant for present purposes, is the close correspondence between the dialectological arrangement in Figure 2 (based on the evidence of shared innovations) and the actual geographical arrangement of the Indo-European languages in their earliest attested stages. (...) the relative positions of the dialects can be mapped straightforwardly into the actual geographical arrangement if

(...) the relative positions were generally maintained as the languages fanned out over larger territory…To be able to account for these dialectological relationships, the 'Out-of-India' approach would have to assume, first, that these relationships reflect a stage of dialectal diversity in a Proto-Indo-European ancestor language located *within India*. While this assumption is not in itself improbable, it has consequences which, to put it mildly, border on the improbable and certainly would violate basic principles of simplicity. What would have to be assumed is that the various Indo-European languages moved out of India in such a manner that they maintained their relative position to each other during and after the migration. However, given the bottle-neck nature of the route(s) out of India, it would be immensely difficult to do so." (Hock 1999:16-17, emphasis Hock's).

Possibility of successive migrations out of Bharat

Koenraad Elst offers a plausible and entirely logical alternative to Hock's arguments:

"The geographical distribution of PIE dialects in the PIE homeland is unrelated to the location of their daughter languages; the isoglosses are the result of a twofold scenario, part areal effect and part genealogical tree, as follows. In part, they reflect successive migrations from the heartland where new linguistic trends developed and affected only the dialects staying behind. Gamkrelidze and Ivanov (1995:348-350) have built an impressive reconstruction of such successive migrations on an impressive survey of the linguistic material. To summarize:

1) Initially, there was a single PIE language.
2) The first division of PIE yielded two dialect groups, which will be called A and B. Originally they co-existed in the same area, and influenced each other, but geographical separation put an end to this interaction.
3) In zone A, one dialect split off, probably by geographical separation (whether it was its own speakers or those of the other dialects who emigrated from the Urheimat, is not yet at issue), and went on to develop separately and become Anatolian.
4) The remainder of the A group acquired the distinctive characteristics of the Tocharo-Italo-Celtic subgroup.
5) While the A remainder differentiated into Italo-Celtic and Tokharic, the B group differentiated into a "northern" or Balto-Slavic-Germanic and a "southern" or Greek-Armenian-Aryan group; note that the kentum/satem divide only affects the B group, and does not come in the way of other and more important isoglosses distinguishing the northern group (with kentum Germanic and predominantly satem Baltic and Slavic) from the southern group (with kentum Greek and satem Armenian and Aryan).

"The second part is that the isoglosses not explainable by the former scenario are post-PIE areal effects, which is why they affect historically neighbouring languages, regardless of whether these had been neighbours when they were dialects of PIE. Archaeologists (mostly assuming a North-Caspian homeland) have said that the North-Central-European Corded Ware culture of ca. 3000 BC was a kind of secondary homeland from which the Western branches of PIE spread, again more or less radially, to their respective historical locations; the OIT (Out-of-India-Theory) would allot that role of secondary western-IE homeland to the Kurgan culture. In such a secondary homeland, IE-speaking communities would, before their further dispersal, be close enough to allow for the transmission of lexical innovations or common substratal borrowings (e.g. *beech*, cfr. Latin *fagus*; or *fish*, cfr. Latin *piscis*, unattested in eastern IE languages). Communities in truly close interaction, at whichever stage of the development of IE, would also develop grammatical isoglosses.

"Hock (1999:14) himself unwittingly gives at least one example which doesn't easily admit of a different explanation: "The same group of dialects [Germanic, Baltic, Slavic] also has merged the genitive and ablative cases into a single 'genitive' case. But within the group, Germanic and Old Prussian agree on generalizing the old genitive form (...) while Lithu-Latvian and Slavic favor the old ablative".

"But clearly, Old Prussian and Lithu-Latvian lived in close proximity and separate from Germanic and Slavic for centuries, as dialects of proto-Baltic, else they wouldn't have jointly developed into the Baltic group, distinct in many lexical and grammatical features from its neighbours. So, if the Baltic language bordering on the Germanic

territory happens to share the Germanic form, while the languages bordering on Slavic happen to share the Slavic form, we are clearly faced with a recent areal effect and not a heirloom from PIE days. The conflation of cases has continued to take place in many IE languages in the historical period, so the example under consideration may well date to long after the fragmentation of PIE.

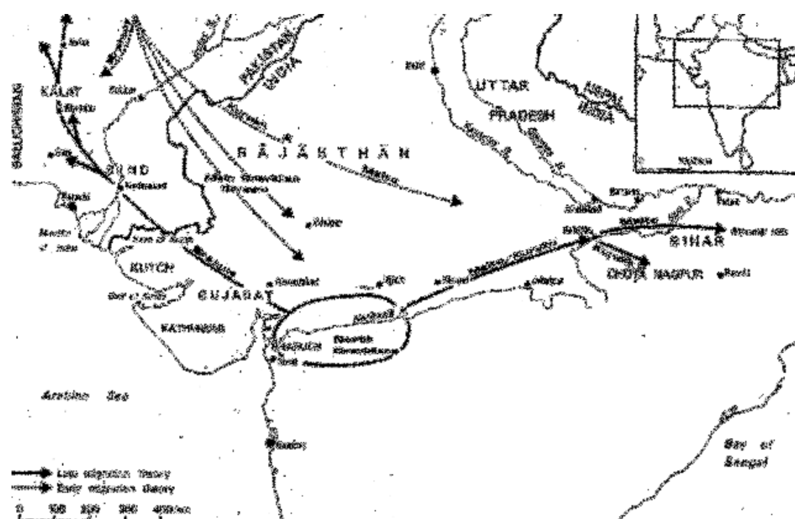
“A second example mentioned by Hock may be the split within the Anatolian group, with Luwian retaining a distinction between velar and palatal but Hittite merging the two, just like its Greek neighbour. Positing an areal influence at the stage of PIE dialectal differentiation on top of an obviously existing areal influence in the post-PIE period seems, in this context, like a "multiplication of entities beyond necessity": neighbouring languages need not also have been neighbours at the dialectal PIE stage in order to transmit innovations, because their present or recent neighbourliness already allows for such transmissions.

“As far as I can see from Hock's presentation, the twofold scenario outlined above is compatible with all the linguistic developments mentioned by him. For now, I must confess that after reading Hock's presentation, the linguistic problem which I have always considered the most damaging to an Indo-centric hypothesis, doesn't look all that threatening anymore. The isoglosses discussed by him do not necessitate the near-identity of the directional distribution pattern of the PIE dialects with that of their present-day daughter languages, which would indeed be hard to reconcile with an out-of-India hypothesis. But I cannot as yet exclude that Hock's line of argument could be sharpened, viz. by proving that certain isoglosses *must* date back to PIE times, making it tougher to reconcile the distribution of isoglosses with an Indian homeland hypothesis.” (Koenraad Elst, *Linguistic aspects of the Aryan non-invasion theory*)[3]

The relative convergence of Indo-Aryan and Dravidian (as well as Munda and to an extent Burushaski) in phonetic, lexical and grammatical features, forms a pan-Indian linguistic zone (vide e.g. Abbi 1994).

The oldest attested Dravidian culture was not urban; according to McAlpin (1979:181-182), the Dravidians "were almost certainly transhumants practising both herding and agriculture, with herding the more unbroken tradition".

"Dravidian influence (in IA) is less than has been expected by specialists." (Wojtilla 1986:34).



Two views of the formation of North Dravidian. [After JH Elfenbein, 1987, A periplous of the ‘Brahui problem’, *Studia Iranica 16*: 215-33:216].

Parpola (1994:170) points out the presence of a Dravidian substratum, starting with the place-names: "*palli*, 'village' (whence *valli* and modern *-oli*, *-ol* in Gujarat), corresponding to South-Dravidian *paLLi*; and *pâTa(ka)* or *pâTi* (whence *vâTa*, *vâTi*, etc., modern -*vâDâ*, *vâD* etc. in Gujarat) as well as *paTTana* (Gujarati *paTTan*), all originally 'pastoral village' from the Dravidian root *paTu*, 'to lie down to sleep'. In addition to place-names, other linguistic evidence suggests that Dravidian was formerly spoken in Maharashtra, Gujarat and, less evidently, Sindh, all of which belonged to the Harappan realm. It includes Dravidian structural features in the local Indo-Aryan languages Marathi, Gujarati and Sindhi, such as the

distinction between two forms of the personal pronoun of the first person plural, indicating whether the speaker includes the addressee(s) in the concept 'we' or not. Dravidian loanwords are conspicuously numerous in the lower-class dialects of Marathi."

This may explain Dravidian influence in the presently IA-speaking coastline.

The directional arrows shown by Elfenbein are not necessarily a true representation of the formation of the linguistic area in the region circa 5500 years Before Present. The arrows could as well be bi-directional with substantial interaction among the dialects of Bharata and with the areas in Baluchistan.

Pre-IE substratum in Indo-Aryan: Proto-Munda

Proto-Munda, may not be the mother but may at least be a very close blood-relative of the Munda languages still spoken in Chhotanagpur and may explain many IA words: e.g. *mayûra*, "peacock" was derived from Munda **mara* and in its turn yielded Tamil *mayil*. Another substratum source could be Language X.

Colin Masica's list of agricultural loans in Hindi (1979), allotted non-IE origins to Indo-Aryan words. Masica (1979) had found no known etymologies for 31% of agricultural and flora terms in Hindi.

About 40% of agricultural terminology in Hindi is derived from Language X (Colin P. Masica).

The importance of Gujarat in unravelling the linguistic area of Bha_rata is stated in the following terms by Colin P. Masica: "...the entire Indo-Aryan realm (except for Sinhalese) constitutes one enormous dialectical continuum...The speech of each village differs slightly from the next, without loss of mutual intelligibility, all the way from Assam to Afghanistan....Mitanni kingdom... Indo-Iranians appear in northern Syria a full half millennium before their appearance in western Iran. How did they get there?...To call these Mitanni kings 'Indo-Iranians', however, is to beg an important question...Some have held that these linguistic fragments are specifically Indo-Aryan. Others including Burrow (1955) held they represent undifferentiated Indo-Iranian, before the split between Iranian and Indo Aryan...An Indo-Aryan identification would demand an earlier dating of the Iranian/Indo-Aryan split; with it have also been associated speculations regarding the route taken by the Aryans to India (e.g., the Asia Minor route...), or, possibly a back migration of Aryans from India. (If the latter, the date of the Aryan settlement of India would have to be moved back far enough to allow not only for them to reach Syria by 1500 BC, but also for their language to have died out by then, leaving only the terminological residue noted...)...the philological evidence alone does not allow an Indian origin of the Aryans...there is the matter of the nature of the common vocabulary shared by Sanskrit with the rest of Indo-European, which points to a more northerly ultimate home...**The native Dravidian vocabulary has not been reconstructed. Burrow and Emeneau's Dravidian Etymological Dictionary (1960) only assembles materials for it...** The civilization seems to have continued peacefully in Gujarat until a comparatively late period, i.e. 800 BC (Fairservis 1975: 307), after which it dissolved into the subsequent culture, which makes that area one of prime importance in detecting any Harappan influence on Aryan language and culture." (Colin P. Masica, *The Indo-Aryan Languages*, Cambridge, Cambridge University Press, 1991).**-**

Nahali, Proto-Indo-Aryan substratum

Is it reasonable to assume that the region was a linguistic area ca. 3500 - 1500 BCE? [Say, with speakers of: Nahali, Burushaski, Prakrits (Proto-Indo-Aryan), Munda, Dravidian dialects]?

Let us look at the evidence of agricultural terms in the languages of the region, terms for agricultural implements, cultivation of the soil, and food items.

“In 1936 Wilhelm Brandenstein concluded from the fact that the Indo-Iranian branch had not taken part in common PIE semantic developments in the field of agricultural terminology that the Indo-Iranians must have lost contact with the main body of PIE speakers at a time when agriculture had not yet developed among them. When the Aryans entered Indoa, accordingly, they would still have been pastoral nomads. Nowadays,

however, the lexical difference is explained by the ‘polycentric origin of the IE agricultural knowledge from two or three earlier food producing centres by cultural – and partly also by lexical – differences’ (Makkay, J., 1988, Cultural groups of SE-Europe in the Neolithic: the PIE homeland problem and the origins of the Proto-greeks, *AION*, 10, p. 125; see also Masica, C.P., 1979, Aryan and non-Aryan elements in North Indian agriculture, in: M.M. Deshpande and PE Hook, eds., *Aryan and Non-Aryan in India*, Ann arbor, p. 57). The process of borrowing has continued over the centuries. In modern Hindi 80 percent of the terminology is, as Masica’s fundamental study has made clear, of foreign origin: ‘The surprising thing is that only a small proportion of the remainder is either Dravidian or Austroasiatic, even by generous estimates’ (1979: 131). See also Schlerath, B., 1989, Viehzuchtertum and Ackerbau, *GGA* 241, 41 ff.” (Kuiper, FBJ, 1991, *Aryans in the Rigveda*, Amsterdam, Rodopi, p. 15).

Kuiper cites from Southworth the following examples of glosses, testifying to a ‘strong foreign impact’: *ku_t.a*, ‘house’; *kun.d.a*, ‘pot, vessel’; *u_rdara*, ‘a measure for holding grain’; *apu_pa*, ‘cake’; *odana*, ‘rice dish’; *karambha*, ‘a kind of gruel’; *pin.d.a*, ‘a lump of flesh’; *ulu_khala*, ‘mortar’; *ka_rotara*, ‘sieve, drainer’; *camris.*, ‘ladle’; *kos’a*, ‘cask, bucket’; *kr.s’ana*, ‘pearl’; *ki_na_s’a*, *ki_na_ra*, ‘ploughman’; *khilya*, ‘waste piece of land’; *la_n:gala*, ‘plough’; *si_ra*, ‘plough’; *pha_la*, ‘ploughshare’; *tilvila*, ‘fertile, rich’; *bi_ja*, ‘seed’; *pippala*, ‘berry of the ficus religiosa’; *mu_la*, ‘root’; *khala*, ‘threshing floor’; *r.bi_sa*, ‘volcanic cleft’; *kevat.a*, ‘cave, pit’; *kr.pi_t.a*, ‘thick or firewood’; *s’akat.i_*, ‘cart’; *a_n.i*, ‘linch-pin’; *va_n.i*, ‘swingle tree’; *kulis’a*, ‘axe’; *ku_t.a*, ‘mallet’.(cf. Southworth, F.C., 1979, Lexical evidence for early contacts between Indo-Aryan and Dravidian, in: M.M. Deshpande and P.E. Hook, eds., *Aryan and Non-Aryan in India*, Ann arbor, pp.191-233).

Kuiper goes on to list 383 ‘foreign elements’ in the Rigvedic vocabulary of words such as: *aks.a, araru, alina, a_n.d.a, ku_la, krumu, gargara, chubuka, dr.bhi_ka, na_d.i_, phan., phaliga, bhala, man.d.u_ki, mayu_ra, mala, yaks.u, yadu, vis’pala_, s’akat.i_, s’akuna, s’an.d.ika, s’abala, sini_va_li_, sr.bida.* The approximately 380 ‘foreign words’ listed by Kuiper are computed to be nine percent of the Rigvedic vocabulary contained in Grassmann’s dictionary. “…many among these ‘Aryans’ had non-Aryan names and…this fact points to some inescapable conclusions…Statements to the effect that the Rigveda was no longer purely Aryan are therefore correct to the extent that they refer to the language and the ethnic components: both were ‘Aryan’.” (p. 96).

The use of words such as ‘foreign origin’, ‘strong foreign impact’ for as much as 80 percent of agricultural terminology is based on the euro-centric perspective of incursion of Indo-European language into Bharat creating the Indo-Aryan. Kuiper concedes: “It should not be forgotten that it was Indo-Europeanists who began to study the non-Aryan languages of India, because to them it was quite evident that a not inconsiderable part of the Sanskrit vocabulary could not possibly be of IE origin. The preceding list was drawn up from an Indo-Europeanist’s point of view…The main point is that it should be recognized that Sanskrit had long been *an Indian language* when it made its appearance in history…A language in which simultaneously Dravidian calques arose and Indo-European laryngeals were still pronounced (viz. in *tanuam*, *suar*) was more progressive and, at the same time, more archaic than could be imagined a few decades ago.” (p. 94).

From an autochthonous perspective, these examples of glosses point to an indigenous evolution of the Prakrits, later refined into Sanskrit.

There is no basis to assume that the Bhils of Gujarat and Madhya Pradesh originally spoke a non-IE language, probably Nahali, yet: "No group of Bhils speak any but an Aryan tongue. (...) it is unlikely that traces of a common non-Aryan substratum will ever be uncovered in present-day Bhili dialects." (von Fürer-Haimendorf 1956:x, quoted in Kuiper 1962:50).

Braziers

Bha_rati_ is a name of Sarasvati_, the godess of Speech, word, eloquence, literary composition, dramatic art; bha_rati_ means relating to Bha_rata, that is, India. In R.gveda (1.188.8), Bha_rati_, the godess of Speech is invoked with Il.a_ and Sarasvati_: bha_rati_l.e sarasvati. Bha_rati_ is also the name of a bird, a quail (Telugu).

Thus, when a bull is depicted with a bird, the reference could be to bha_rati_ the bird with a rebus representation for the following substantive etyma:

> **bharatiyo** = a caster of metals; a brazier; bharatar, bharatal, bharatal. = moulded; an article made in a mould; bharata = casting metals in moulds; bharavum = to fill in; to put in; to pour into (G.lex.) bhart = a mixed metal of copper and lead; bhart-i_ya_ = a brazier, worker in metal; bhat., bhra_s.t.ra = oven, furnace.

The context for decoding inscribed objects is thus apparent. Tools of trade of metal-workers! The language is des'i or bha_s.a_ or Meluhhan! Yes, the Meluhhan which was understood by both Vidura and Yudhis.t.ira in the Maha_bha_rata. The people from Milakku are copper-workers, since milakku means 'copper' in Pali language. Meluhhans are referred to in the texts of Mesopotamian civilization. Sumerian had words of a substrate language, for example, tibira, 'merchant' may relate to ta_m(b)ra, 'copper'; san:gi, 'priest' could relate to sa_n:ghvi_, 'pilgrim's companion' (Gujara_ti_). The key to decoding is, thus, provided by the ancient lexemes of the present-day languages of the region, with intense interactions, for example, Gujara_ti_, Punja_bi_, Kon:kan.i, Kannad.a, Telugu, Tamil, Brahui, Mundari, Santali. Substrate and ad-strate words of these languages of Bha_rata hold the key to unraveling the linguistic area of the civilization, ca. 3300 to 1500 BCE.

There are some indications of close contacts between Sumerian and Dravidian as seen from a few agricultural vocabulary:

> *ur* 'millstone' (Sumerian); *ur-al* 'mortar' (Ta.); *ulu_khala* (Skt.)
> *ili* 'sesame' (Sumerian), *ellu/u_lu* 'sesame oil' (Akkadian); *el., el.l.u* 'Sesamum indicum' (Ta.); *tila, jar-tila* 'sesame' (Vedic)(Blazek, V. and C. Boisson, The Diffusion of Agricultural Terms from Mesopotamia. *Archiv Orientalni* 60, 1992, 16-37)
>
> It is possible that IE **kwe-kw-lo-* 'wheel' may be related to Sumerian *gilgul* 'wheel'; (GIS-); *gigir* 'wagon'. *a_n.i* which occurs in the R.gveda as 'lynch pin' is considered foreign to both Dravidian and Vedic. IE *rota* 'rotate' may also relate to *urut.t.u* 'roll'; *urul.* 'roll' (Ta.)

These anecdotal examples point to the need for postulating a Language X to further unravel the glosses of Old Indic of the period circa 5000 years Before Present.

Language X

What language did the braziers of Bha_rata speak?

Meluhhan! The language which Vidura and Yudhis.t.hira understood, as noted in the Great Epic, Maha_bha_rata. A language spoken not too far from Gujarat. Sumerians needed an interpreter to translate Meluhhan.

Our hypothesis is that the traders with their seals, and people who travelled in Swat and Seistan, in search of minerals, were the bronze-age smiths and lapidaries of Meluhha.

Meluhhan

There is evidence of a substrate language of anient Sumer; this language could be located in Bha_rata in the contemporaneous Sarasvati-Sindhu civilization ca. 3500 -2500 BCE. Like the influence of Celtic on ancient Gaul, Sumerian shows signs of a substrate language in the use of professional names such as **sanga** 'priest', **simug** 'blacksmith' and **tibira** 'copper smith', 'metal-manufacturer'; craftsman like **nangar** 'carpenter', **a:gab** 'leather worker'; agricultural terms, like **engar** 'farmer', **apin** 'plow' and **absin** 'furrow'.

> *tambira* = copper (Pkt.) *tibira* = merchant (Akkadian)

Sumerian <tibira> or <tabira> (written LU2 URUDU-NAGAR, i.e. "[person] copper.carpenter") means "metal worker, coppersmith".[4]

tibhi = to prop by means of a post with a V-shaped head, a prop with a V-shaped head (Santali).
tabar = a broad axe (P.lex.)
taber = face downwards, upper side down; *taber akanae* he is lying on his face, or stomach (Santali) [Note the glyph of a woman lying upside down.]

Rebus: **t.ibri, t.ebra** = small, short of stature with large stomach (Santali)
Rebus: **tebr.a, tebor.** 'three times, thrice'; *tebr.age emok hoyoktama* you will have to give thee times that (Santali) The glyptic representation is three long linear strokes: **|||**

Hurrian copper casters

If Hurrian metalworkers were intermediary between Proto-Indo-European (PIE) and Sumerian for a number of words (eg.Sumerian gigir and PIE *kwelkos, for example, may be compared with **tikiri**, wheel (Tamil)[5].

Hypotheses are

(1) that many inscribed objects of ca. 3300 BCE found in settlements on Sindhu and Sarasvati rivers relate to stone-/metal-workers;
(2) that the Indo-Aryan word for copper is: ta_m(b)ra (cf. **tamba**, 'copper' in Pali language);
(3) that metal-caster is a **bharata** which could be cognate with the **bharata**-s (a group of people) mentioned in the R.gveda; and
(4) that the Language 'X' of Colin Masica may indeed be Meluhhan or Mleccha dialect, cognate with Nahali, a language isolate of Narmada valley or **kha_n.d.ava** vana (forest), not far from Bhr.gu ks.etra [bhr.gu = **va_run.i_** (R.gveda), i.e. people of a maritime, riverine civilization].

According to Gernot Wilhelm, the Hurrian version of tabira is: **tab-li** 'copper founder'; **tab-iri** 'the one who has cast (copper)'.

Hurrian is attested in Mitanni epigraphs (ca. 14th century BCE) which also indicate Indo-Aryan names of Mitanni kings and the work of Kikkuli, the horse-trainer who introduced Samskr.tam (or Indo-Iranian or Indo-Aryan) technical words such as **eka**-vartana, **dvi**-vartana, **nava**-vartana for training horses.

"We cannot say when Hurrians first arrived in this area. Linguistic criteria, however, seem to indicate that the ancestors of the historical Hurrians had already inhabited the mountainous regions of eastern Anatolia for several centuries... The Sumerians probably borrowed their word for 'coppersmith' (TABIRA, TIBIRA) from proto-Hurrian [Hurrian tab-li 'copper founder'; tab-iri 'the one who has cast (copper)'].

"...letters and documents of the Old Assyrian trading colonies of the twentieth and nineteenth centuries... reveal that although practically no Hurrians lived in Kanesh (modern Kultepe), the center of trading activity, Hurrian names were common south of the Anti-Taurus Mountains in this period. We do not know when Hurrians migrated into the area between the Euphrates and the Mediterranean. The Ebla tablets of the twenty-fourth and twenty-third centuries give no indication of Hurrians in this region...

"The names of the kings of Mitanni are known to us only from the early fifteenth century and later. Not one of these names is Hurrian. Rather, they are all derived with more or less certain etymologies from an archaic form of Indo-Aryan...... the language spoken in Mitanni remained Hurrian...

"...At present the earliest known direct evidence for a Mitannian ruler is the seal of a King Shuttarna, son of Kirta. Impressions of his seal are found on two records from the second half of the fifteenth century produced by a later king, namely, Saushtatar..." (Gernot Wilhelm, 1995, The Kingdom of Mitanni in Second-

Millennium Upper Mesopotamia, in:Jack M. Sasson (ed.) , C*ivilizations of the Ancient Near East* , Vol. II, pp. 1243-1254).

These Hurrian contacts indicate the migration of people from the Sarasvati-Sindhu Civilization area (i.e. the region of Meluhhan speakers) towards Mitanni and perhaps, Anatolia.

"…how could these Aryan immigrants first peacefully integrate into Harappan or post-Harappan society yet preserve their language and later even impose it on their host society? Neither their numbers, relative to the very numerous natives, nor their cultural level, as illiterate cowherds relative to a literate civilization, gave them much of an edge over the natives. Therefore, the only plausible way for them to wrest power from the natives must have been by their military superiority, tried and tested in the process of an actual conquest... As things now stand, the Aryan "immigration" theory necessarily implies the hypothesis of military conquest." [Koenraad Elst, 2000]

Agriculture and use of metals seems to have existed before the arrival of the Sumerians in the Tigris-Euphrates doab. Name of a city Kish also seems to be non-Sumerian in origin. Most of these words are likely to be loan words from one or more substrate languages.

cf. http://www.sron.ruu.nl/-jheise/akkadian/bronze_age.html

One such substrate language was Meluhhan.



The Meluhhan being introduced carries an antelope on his arm. Cylinder seal Impression. Akkadian. Inscription records that it belongs to 'S'u-ilis'u, Meluhha interpreter'. Musee du Louvre. Ao 22 310, Collection De Clercq.

'In a letter dated 16 May 1990, Dr. Dominique Collon comments on the iconography as follows: 'The seal depicts a seated figure, identifiable by her long hair as feminine and by her horned head-dress (chipped) as a deity. The flounced robe is also generally an indication of divinity. The child on her lap could be the owner of the seal but is more likely to be an attributor of the godess. The figures approaching the godess are probably the owner of the seal and his wife although it is possible that these are priestly figures. Several centuries later, in Old Babylonian times, it is the king who almost always carries the animal offering but he is probably seeking favourable omens and the deities he approaches are ther particularly connected with omens (see Collon 1986: III.37). On these later, Old Babylonian seals, the figure carrying a situla or bucket is generally a priest but here it is clearly a woman and there is nothing to indicate that she is a priestess of a queen. Both wear Akkadian dress and nothing distinguishes them as foreigners. The significance of the kneeling male figure and the pots behind is difficult to interpret: they could be an attribute of the godess, and the large pots on stands are used even today for water – perhaps an additional reference to the godess' fertility aspect. Among the seals illustrated by R.M. Boehmer (1965) seals 549 and 555 make clear that some sort of drink is involved. Boehmer's plate 47 shows that the scene belongs to a well-established iconographical group and was not specifically created for the Meluhha interpreter – indeed it was probably chosen from a range of ready-cut seals in a seal-cutter's workshop and the inscription was added. This would account for the

fact that the figures overlap the inscription frame on both sides. Boehmer attributes the seal to Akkadisch III period – i.e. from Naramsin onwards." [cf. Parpola, 1994, fig. 8.4]

An Akkadian seal (after Powell, p. 390: *The Bronze Age Civilization of Central Asia*, New York, 1980) shows the translator of the Meluhhan (Sindhu Sarasvati) language (EME.BAL.ME.LUH.HA.KI) is received by a person of high rank and sitting by his lap. Another Meluhhan sitting by three jars makes a greeting gesture. Two persons enter: one carries an animal, the other a purse. British Museum tablet #79987 enumerates a 'man of Meluhha' named (...)-**ibra** in a list of foes of Naram-Sin, King of Akkad, ca. 2250 BCE. "During the second half of the 3rd millennium BC, textual sources frequently refer to trade with Dilmun, Magan and Meluhha. Dilmun is known to be the island of Bahrain, Magan is probably present-day Makran and the territory opposite it in Oman, while at this period it seems that Meluhha referred to the Indus Valley where the flourishing cities of Mohenjo Daro and Harappa have been excavated. The Indus Valley civilisation used square stamp seals but under the impetus of trade some cylinder seals appear and a Meluhhan interpreter used a typical Akkadian seal." (Collon, 1987)

An attempt to unravel the language spoken by the Meluhhan on this cylinder seal has been made, through a number of sources. Proceeding on the assumption that Meluhha as seen from Mesopotamia was the Sapta-Sindhu region of Bha_rata, one such source is the compilation of a lexicon based on sememes from the ancient versions of present-day languages of Bha_rata. Another source is the application of many lexemes from this lexicon using the rebus method to many glyphs of the inscribed objects from Meluhha of the period, ca. 2250 BCE.

It appears that the 'antelope' or 'ram' shown on the back of the Meluhhan is a homonym for a semantic determinant connoting the nature of his profession, the helper of a merchant. This interpretation is surmised from two elamite artifacts -- the silver and gold statues of an Elamite king carrying a zebu bull.

The Elamite is announcing himself as: **ku_t.a**, 'chief'; **khu~t.,** 'bra_hman.i (zebu) bull'. On a silver statue, he carries a short-horned bull; on a gold statue, he carries a zebu bull. The short-horned bull is **homa** 'bison'; rebus: **soma** 'electrum'. The zebu is: **adar d.an:gra**; rebus: **adaru** 'native metal, panned gold' **d.an:gra, t.hakkura** 'blacksmith, chief".



Elamite king, gold and silver statuette 12 Century BC, **3" high** discovered 1904 by archaeologist Roland *de* Mecquenem at Susa's (shoush) acropolis.

So, what is the Meluhhan shown on the cylinder seal doing? He is selling copper and perhaps also other minerals, metals and metal products of the warehouse (**ma_n.d.a_**: Kon:kan.i) of braziers from Meluhha.

me_n.d.ha = ram (Skt.)(CDIAL 10310). me_l.h goat (without etymology)(Brahui); mr..e_ka (unknown meaning)(Te.); me_~ka = goat (Te.)(DEDR 5087). Rebus: **med.** 'iron' (Mundari)

Melukkha (milakkhu, 'copper': Pali)! **met.ari**, hero, warrior, eminent person, merchant's clerk. mehto [Hem. Des. med.ho = Skt. Van.ik saha_ya, a merchant's clerk, fr. mahita, praised, great] a schoolmaster; an accountant; a clerk; a writer (G.lex.) mel. = tallying, balancing of accounts; a cash-book; mel.van. = a mixture, a composition; mixing (G.lex.) me_r..iyar = pu_vaiciyar, ve_l.a_l.ar, i.e. agriculturists, traders (Ta.lex.)



He is a hero, an eminent person. me_t.i, me_t.ari an eminent person, hero, warrior; min.d.a = hero; me_t.t.i = excellence, chief, head, land granted free of tax to the headman of a village (Te.); me_ti = greatness, a big man, a chief, head servant (Ka.); me_t.ari, me_t.i = chief, head, leader, lord (Te.)(DEDR 5091).

The language of the civilization is bha_s.a_ (or Hemacandra des'i_), meluhhan substrate, like Nahali, with borrowings from many language streams, thus constituting a linguistic area, ca. 3500-1500 BCE. The neolithic precursor of the civilization has recently been discovered in two sunken rivers in the Gulf of Khambat close to the Nahali-speaking valley -- Narmada river valley. The structure and semantics of the language will be unravelled further, now that the rebus principle for decoding the glyphs has been validated for a large number of inscribed objects..





A_yudha_ni

TA Gopinatha Rao, *Elements of Hindu Iconography*, 2 vols., Madras, 1914 provides a perspective on the mudra-s and the types of a_yudha_ni and other sacred articles carried by devata_ in the a_gama tradition of Bha_rata.

In the bronze images of S'iva – standing image of S'iva Candras'ekhara and sitting image of Uma_ mahes'vara – the deity is shown carrying a weapon (an axe) on one hand and an antelope with its head turned backwards on another hand.

What is the significance of the antelope shown on one hand when a weapon is expected to be shown, consistent with the tradition of treating 'weapons' as auspicious? Is it a copper axe? *melh*, 'goat' (Br.); rebus: *melukka* 'copper' (Pali); synonym: *tambira* 'copper' (Pkt.); rebus: *tabar* 'axe' (P.)

The a_gama tradition in Tamilnadu refers to the a_yudha_ni of Somaskanda as *ma_n-um mar..aiyum* 'deer and paras'u axe'; and the philosophical explanation is that the *ma_n-* 'antelope' represents the animate world of living beings and Somaskanda is the protector of such a world..

Language X, Nahali, Vedic

A remarkable clue is provided by the existence of Nahali as an isolate language in the Narmada Valley, a valley which has assumed prominence as a neolithic precursor (ca. 10000 years Before Present) of the bronze-age civilization on the Sarasvati Sindhu River valleys. Was Nahali an Austro-asiatic language; or was it an Indo-European language? The vocabulary of Nahali[6] contains a number of words which may be interpreted as the Indo-Aryan substratum. The Gulf of Khambat Cultural Complex (GKCC) close to the area of the Nahali-speakers is only 300 kms. from Padri, Dholavira and Surkotada which are replete with stone structures; in Dholavira, ringstones and polished pillars of stone have been found. A maritime, riverine culture of the GKCC parallels the land-based, riverine, Mehrgarh neolithic evidence.

Close to the Gulf of Khambat Cultural Complex where two submerged rivers have been discovered (possible extensions of palaeo-channels of River Tapti) are the speakers of Nahali language which is described as an Indo-Aryan language.
http://www.hindunet.org/saraswati/khambat/khambat01.htm

Piotr Gasiorowski, a linguist active on the cybalist group: "Strictly speaking, Nahali (spoken on the upper Tapti) is not an isolate, though it's classified as such e.g. on the SIL site. Present-day Nahali is genetically an Indo-Aryan language whose lexicon shows several layers of absorbed substrates. Though the exact percentages apparently vary from dialect to dialect (while minor and endangered, Nahali is not a monolithic languages), according to Kuiper's estimates the largest lexical component (ca. 36%) is borrowed from Kurku (a.k.a. Korku, a Munda language), about 9% of Nahali words are Dravidian (e.g. the numerals 2, 3 and 4, whereas 5 and higher are Indo-Aryan), and some 25% are of unknown origin. Because of the high proportion of Munda loans Nahali has also been erroneously classified as a Munda language or even a dialect of Kurku. The etymologically obscure part of Nahali vocabulary is thought to represent an ancient pre-Indo-Aryan substrate of the Madhya Pradesh/Maharashtra border. Although the figure 25% may be exaggerated, the substrate -- unrelated to any known family -- seems to be real enough. Kuiper's attempts to establish a distant relationship between Nahali and Ainu ("Isolates of the world, unite!") should not be taken too seriously. It's quite possible that Central India was once a crazy quilt of tiny families. Relics of the Nahali substrate and perhaps of other, hitherto unidentified extinct languages may be lurking in the local varieties of Indo-Aryan, e.g. in the numerous but poorly investigated languages of the Bhil group."
http://groups.yahoo.com/group/cybalist/message/13915

Yes, Nahali is spoken on the upper reaches of the Tapati river valley. The Tapati river extensions have been submerged in the Gulf of Khambat when the gulf was formed ca. 10,000 yrs. Before Present and resulted in the start of regular monsoons in India. Nahali provides the key to unravel further the proto-Indo-Aryan using epigraphs of the 4th to 2nd millennia.

Piotr's thoughts jibe with Emeneau's postulate on a linguistic area and Norman Brown's observations. Recognizing the structure of a proto-Indo-Aryan linguistic area may help explain the glyphs on inscribed objects found between ca. 3500 to 1500 BCE in Sarasvati-Sindhu River basins.

bharukaccha, **bharu-rat.t.ha** =a kingdom which is said to have been swallowed up by the sea (Pali.lex.Ja_taka 2.169).

Bhr.gu (cognate with **bharu**-) is **va_run.i** in R.gveda and is closely associated with the sea. Bharukaccha (Bharuch) is on the coast of Sindhu sa_gara (Arabian ocean) close to where the River Narmada joins the ocean.

Was Nahali a language of the Bhils of western Bha_rata?

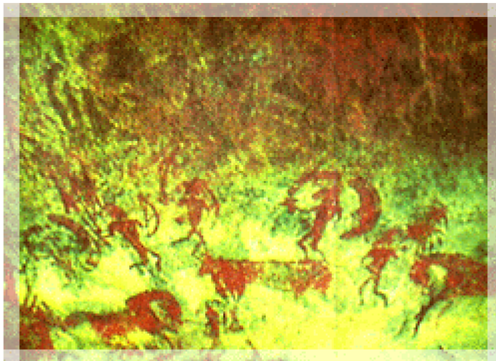
Nahali was spoken on the River Tapti, NW of Ellichpur in Madhya Pradesh. Of the vocabulary, 36% are of Kurku (Munda) and 9% of Dravidian origin. Kuiper lists 123 items of vocabulary not reducible to Austro-Asiatic, Dravidian or IE roots, and calculates that "about 24 per cent of the Nahali vocabulary has no correspondence whatever in India". (FBJ Kuiper, 1962, *Nahali, a comparative study*. Amsterdam: Noord-Hollandse Uitgevers Maatschappij, pp.49-50; 1966, The sources of Nahali vocabulary, in: H. Zide, *Studies in*

comparative Austroasiatic. Linguistics, ed. N. H. Zide, The Hague, pp. 96-192). Bernard Sergent thinks that Nahali is an Austro-Asiatic language (*Genèse de l'Inde*, p.31.)

Nahali language (like Basque or Burushaski) is an isolate language unrelated to the Indo-European family. http://www.ship.edu/~cgboeree/languagefamilies.html

The genetic affiliation of Nahali is controversial and can be related to the 'linguistic area' of ca. 3500 BCE in the civilization area. About 40% of the lexicon is cognate to Munda languages, and some linguists therefore put it in that group. Among the numbers, 2-4 are borrowed from Dravidian, and 5-10 from Indic. Numerals in Nahali: *bidum* (m.), *bidi* (f.), 'one'; *ir, ira* 'two'; *motho* 'three', *na_lo* 'four'; *pa~co* 'five'; *chah* 'six'; *sato* 'seven'; *atho* 'eight'; *nav* 'nine'; *das* 'ten'; *ba_ro* 'twelve'. *http://euslchan.tripod.com/isolated.htm*

Gondi *manja* 'man, person'; Tamil *mântar* 'people, men', *man* 'king, husband'; Old Japanese *wo-mina* 'woman' (Modern Japanese *onna*); Ainu *mene-ko* 'woman'; Papuan *munan, mando, mundu* 'man'; Nahali *mancho* 'man'; Egyptian *sn* 'smell'; Hausa *sansana* 'smell'; Georgian *sun* 'smell'; Tamil, Malayalam *cuNTu* 'bill, beak, snout'; Basque *sunda* 'smell'; Tibetan *sna* 'smell'; Nahali *chon* 'nose'; Seneca *oseno* 'smell'; Wintu *sono* 'nose'



"Nahale north of Amalwadi in Jalgaon District speak a language similar to Ahirani (Indo-European). Nihali and Nahali may be different languages. Nihal in Chikaldara taluk and Akola District have 25% lexical similarity with Korku (Munda). Nahal near Toranmal have 51% to 73% lexical similarity with several Bhil languages (Indo-European). They live in or near Korku villages, and identify closely with the Korku. Investigation needed: intelligibility with nearby Bhili languages, bilingual proficiency in Korku (Munda), Hindi, Marathi. Tropical forest. Mountain slope."

http://www.ethnologue.com/show_language.asp?code=NHL

Maheshwar, 90 kms. from Indore, is a town situated on the banks of the Narmada River, in Khargone district of the State of Madhya Pradesh in Bha_rata. Archaeological digs at Naodatodi, 2 kilometers away across the Narmada have unearthed remains dating from 2000 BC. In classical periods, Maheshwar was known as Mahishmati or Mahisati, and later Avanti, the state capitol of Raja Bhoja. S'an:kara and Mand.ana Mis'ra (who was a poet in the court of Ma_his.mati) discuss the karma mi_ma_msa philosophy at Ma_his.mati, a place mentioned in both the Ra_ma_yan.a and the Maha_bha_rata. It was the capital city of Ka_rtavi_rarjuna (who killed Jamadagni); it was also the capital city of the Va_ka_t.aka-s (6th cent.) who built the cave-temples of Ellora. This is the ks.etra of Paras'urama, 'Rama of the axe', a Brahmin, born to the sage Jamadagni and his wife Renuka. This is also Bhr.gu ks.etra (cf. Bharuch on the mouth of Narmada river). In the Bhr.gu tradition, Vishnu's consort is Lakshmi, the goddess of wealth and fortune. She is believed to have emerged from the samudra manthan, and considered to be the daughter of Bhr.gu and Khyati.

Not far from the region is Bhimbet.ka, where 500 caves have pre-historic paintings showing many horses and also chariots (one pictorial motif is interpreted by H.D. Sankalia, as Kr.s.n.a wielding a cakra a_yudha (discus weapon). Horses or chariots are not imports from Central Asia into Bha_rata!

"Executed mainly in red and white with the occasional use of green and yellow, with themes taken from the everyday events of aeons ago, the scenes usually depict hunting, dancing, music, horse and elephant riders, animals fighting, honey collection, decoration of bodies, disguises, masking and household scenes. Animals such as bisons, tigers, lions, wild boar, elephants, antelopes, dogs, lizards, crocodiles etc. have been abundantly depicted in some caves. Popular religious and ritual symbols also occur frequently." http://www.meadev.nic.in/tourism/exotic/bh-mp.htm



Horse depicted in a painting in Cave 4 at Bhimbetka



Domesticated horse shown on a painting in Cave no. 8 at Bhimbet.ka
http://www.art-and-archaeology.com/india/

kha_n.d.ava vana: Explorations in the beds/tributaries of Narmada have revealed traces of the Paleolithic men in East Nimar district. Omkar Mandhata, a rocky island on the bank of Narmada river, about 47 miles North-West of Khandwa, is said to have been conquered by the Haihaya king Mahishmant, a scion of Yadu family, who had named the capital as Ma_his.mati. From the early 2nd Century B.C., to the 10 century CE, the Nimar Region (earlier a part of Kha_n.d.ava) was ruled by Mauryas, Sungas, Early Satvahanas, Kardamakas, Abhiras, Va_kat.akas, Guptas, Kalachuris, Vardhanas (of Harsha Vardhana fame), Chalukyas, Ra_s.t.raku_t.as, Paramaras. There is a group of ks.atriya known as somavam.s'i_ya sahasra_rjuna ks.atriya, claiming their lineage to Ra_jara_jes'vara Sahasra_rjuna ca. 2600 BCE. http://www.sskna.org/ssk_history.html Omka_res'war is an island at the confluence of River Narmada and River Kaveri . [The same name 'ka_veri' is the name of the river which flows from Karna_t.aka through Tamilna_d.u].

It is a reasonable hypothesis that Language X can be traced to languages such as the substrate Nahali and that Language X was in fact the Vedic language. It is also assumed that Nahali exemplifies the state of the Linguistic Area, ca. 3500 to 1500 BCE in North-western Bha_rata.

Linguistic area, Civilization of Bha_rata, ca. 3500-1500 BCE

The following observations by Emeneau and Bloch will be tested through clusters of lexemes of an *Indian Lexicon*, which relate to the archaeological finds of the civilization. These clusters of lexemes are aids to the process of decoding the epigraphs containing both pictorials and signs as glyphs.

"In fact, promising as it has seemed to assume Dravidian membership for the Harappa_ language, it is not the only possibility. Professor W. Norman Brown has pointed out (The United States and India and Pakistan, 131-132, Cambridge, Harvard University Press, 1953) that Northwest India, i.e. the Indus Valley and adjoining parts of India, has during most of its history had Near Eastern elements in its political and cultural make-up at least as prominently as it had true Indian elements of the Gangetic and Southern types. The passage is so important that it is quoted in full: 'More ominous yet was another consideration. Partition now would reproduce an ancient, recurring, and sinister incompatibility between Northwest and the rest of the subcontinent, which, but for a few brief periods of uneasy cohabitation, had kept them politically apart or hostile and had rendered the subcontinent defensively weak. When an intrusive people came through the passes and established itself there, it was at first spiritually closer to the relatives it had left behind than to any group already in India. Not until it had been separated from those relatives for a fairly long period and had succeeded in pushing eastward would I loosen the external ties. In period after period this seems to have been true. In the third millennium BCE the Harappa culture in the Indus Valley was partly similar to contemporary western Asian civilizations and partly to later historic Indian culture of the Ganges Valley. In the latter part of the next millennium the earliest Aryans, living in the Punjab and composing the hymns of the Rig Veda, were apparently more like their linguistic and religious kinsmen, the Iranians, than like their eastern Indian contemporaries. In the middle of the next millennium the Persian Achaemenians for two centuries held the Northwest as satrapies. After Alexander had invaded India (327/6-325 BCE) and Hellenism had arise, the Northwest too was Hellenized, and once more was partly Indian and partly western. And after Islam entered India, the Northwest again was associated with Persia, Bokhara, Central Asia, rather than with India, and considered itself Islamic first and Indian second. The periods during which the Punjab has been culturally assimilated to the rest of northern India are ew if any at all. Periods of political assimilation are almost as few; perhaps a part of the fourth and third centuries BCE under the Mauryas; possibly a brief period under the Indo-Greek king menander in the second century BCE; another brief period under the Muslim kingdom of Delhi in the last quarter of the twelfth century A.D.; a long one under the great Mughals in the sixteenth and seventeenth centuries A.D.; a century under the British, 1849-1947.'

"Though this refers to cultural and political factors, it is a warning that we must not leap to linguistic conclusions hastily. The early, but probably centuries-long condition in which Sanskrit, a close ally of languages of Iran, was restricted to the northwest (though it was not the only language there) and the rest of India was not Sanskritic in speech, may well have been mirrored earlier by a period when some other language invader from the Near East-a relative of Sumerian or of Elamitic or what not-was spoken and written in the Indus Valley-perhaps that of invaders and conquerors-while the indigenous population spoke another language-perhaps one of the Dravidian stock, or perhaps one of the Munda stock, which is now represented only by a handful of languages in the backwoods of Central India.

"On leaving this highly speculative question, we can move on to an examination of the Sanskrit records, and we find in them linguistic evidence of contacts between the Sanskrit-speaking invaders and the other linguistic groups within India...

"...the early days of Indo-European scholarship were without benefit of the spectacular archaeological discoveries that were later to be made in the Mediterranean area, Mesopotamia and the Indus Valley... This assumption (that IE languages were urbanized bearers of a high civilization) led in the long run to another block-the methodological tendency of the end of the nineteenth and the beginning of the twentieth century to

attempt to find Indo-European etymologies for the greatest possible portion of the vocabularies of the Indo-European languages, even though the object could only be achieved by flights of phonological and semantic fancy... very few scholars attempted to identify borrowings from Dravidian into Sanskrit...The Sanskrit etymological dictionary of Uhlenbrck (1898-1899) and the Indo-European etymological dictionary of Walde and Pokorny (1930-1932) completely ignore the work of Gundert (1869), Kittel (1872, 1894), and Caldwell (1856,1875)... It is clear that not all of Burrow's suggested borrowings will stand the test even of his own principles..." [M.B.Emeneau, India as a Linguistic Area [Lang. 32, 1956, 3-16; *LICS*, 196, 642-51; repr. In Collected papers: *Dravidian Linguistics Ethnology and Folktales*, Annamalai Nagar, Annamalai University, 1967, pp. 171-186].

"'India' and 'Indian' will be used in what follows for the subcontinent, ignoring the political division into the Republic of India and Pakistan, and, when necessary, including Ceylon also... the northern boundary of Dravidian is and has been for a long time retreating south before the expansion of Indo-Aryan... We know in fact from the study of the non-Indo-European element in the Sanskrit lexicon that at the time of the earliest Sanskrit records, the R.gveda, when Sanskrit speakers were localized no further east than the Panjab, there were already a few Dravidian words current in Sanskrit. This involves a localization of Dravidian speech in this area no lather than three millennia ago. It also of course means much bilingualism and gradual abandonment of Dravidian speech in favor of IndoAryan over a long period and a great area-a process for which we have only the most meagre of evidence in detail. Similar relationships must have existed between Indo-Aryan and Munda and between Dravidian and Munda, but it is still almost impossible to be sure of either of these in detail... The Dravidian languages all have many Indo-Aryan items, borrowed at all periods from Sanskrit, Middle Indo-Aryan and Modern Indo-Aryan. The Munda languages likewise have much Indo-Aryan material, chiefly, so far as we know now, borrowed rom Modern Indo-Aryan, thogh this of course inlcudes items that are Sanskrit in form, since Modern Indo-Aryan borrows from Sanskrit very considerably. That Indo-Aryan has borrowed from Dravidian has also become clear. T. Burrow, The Sanskrit Language, 379-88 (1955), gives a sampling and a statement of the chronology involved. It is noteworthy that this influence was spent by the end of the pre-Christian era, a precious indication for the linguistic history of North India: Dravidian speech must have practically ceased to exist in the Ganges valley by this period... Most of the languages of India, of no matter which major family, have a set of retroflex, cerebral, or domal consonants in contrast with dentals. The retroflexes include stops and nasal certainly, also in some languages sibilants, lateral, tremulant, and even others. Indo-Aryan, Dravidian, Munda and even the far northern Burushaski, form a practically solid bloc characterized by this phonological feature... Even our earliest Sanskrit records already show phonemes of this class, which are, on the whole, unknown elsewhere in the Indo-European field, and which are certainly not Proto-Indo-European. In Sanskrit many of the occurrences of retroflexes are conditioned; others are explained historically as reflexes of certain Indo-European consonants and consonant clusters. But, in fact, in Dravidian it is a matter of the utmost certainty that retroflexes in contrast with dentals are Proto-Dravidian in origin, not the result of conditioning circumstances... it is clear already that echo-words are a pan-Indic trait and that Indo-Aryan probably received it from non-Indo-Aryan (for it is not Indo-European)... The use of classifiers can be added to those other linguistic traits previously discussed, which establish India as one linguistic area ('an area which includes languages belonging to more than one family but showing traits in common which are found not to belong to the other members of (at least) one of the families') for historical study. The evidence is at least as clear-cut as in any part of the world... Some of the features presented here are, it seems to me, as 'profound' as we could wish to find... Certainly the end result of the borrowings is that the languages of the two families, Indo-Aryan and Dravidian, seem in many respects more akin to one another than Indo-Aryan does to the other Indo-European languages. (We must not, however, neglect Bloch's final remark and his reasons therefor: **'Ainsi donc, si profondes qu'aient ete les influences locales, elles n'ont pas conduit l'aryen de l'inde... a se differencier fortement des autres langues indo-europeennes.'**)" [M.B.Emeneau, Linguistic Prehistory of India [PAPS98 (1954). 282-92; *Tamil Culture* 5 (1956). 30-55; repr. in *Collected papers: Dravidian Linguistics Ethnology and Folktales*, Annamalai Nagar, Annamalai University, 1967, pp. 155-171].

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Indo-European language? The Gulf of Khambat Cultural Complex (GKCC) close to the area of the Nahali-speakers is only 300 kms. from Padri, Dholavira and Surkotada which are replete with stone structures; in Dholavira, ringstones and polished pillars of stone have been found. A maritime, riverine culture of the GKCC parallels the land-based, riverine, Mehrgarh neolithic evidence.

Mlecchita Vikalpa: glyphs (or, cipher-writing) and bha_s.a_

Mlecchita vikalpa is cryptography or writing in glyphs; it is one of the 64 arts according to Va_tsya_yana's *Ka_masu_tra*. Mleccha is a word cognate with Pali Melukka which means copper. Mlecchita vikalpa may, therefore, be the work of metal workers and may be related to the writing system found on many copper tablets and inscribed weapons, apart from seals and tablets of the civilization.

Epigraphs of the civilization may be hypothesized as representing the writing system for Meluhhan or indic language; it may be possible to explain many orthographic features using indic lexemes. This ***will*** establish that the Meluhhans were the authors of the inscribed objects and that the Meluhhans lived on the banks of Rivers Sarasvati and Sindhu, not too far from Bharu-kaccha where the Gulf of Khambat Cultural Complex has been discovered in 2002 by scientists of National Institute of Ocean Technology. The complex, together with two rivers which were extensions of palaeo-channels of River Tapati was submerged under the ocean ca. 10,000 years ago

Pura_n.as refer to the migration of Druhyus to the Mleccha, i.e. foreign countries. In Pali, milekkha means copper. **mleccha_khya** = 'called Mleccha', copper (Skt.)

That the antelope connotes a substantive may be surmised from the use of the glyph occupying the entire field, on one side of a tablet from Harappa: h349A h349B





One lexeme is homonymous with '**meluhha**', which semantically denotes a ram (antelope or mountain-goat), with a rebus substantive, **melukka** 'copper'. (Alternative: **med.hi**, 'a merchant's clerk').

Desi_, bha_s.a_ substrate

Category mistake

Hunter noted that three round seals with Harappa (Sarasvati-Sindhu) characters found in Mesopotamia may not be in Harappa (Sarasvati-Sindhu) language since there were marked differences in the sequence of letters. "...the four examples of round seals found in Mohenjodaro show well-supported sequences, whereas the three from Mesopotamia show sequences of signs not paralleled elsewhere in the Indus Script. But the ordinary square seals found in Mesopotamia show the normal Mohenjodaro sequences. In other words, the square seals are in the Indian language, and were probably imported in the course of trade; while the circular seals, although in the Indus script, are in a different language, and were probably manufactured in Mesopotamia for a Sumerian- or Semitic-speaking person of Indian descent..." [G.R. Hunter,1932. Mohenjodaro--Indus Epigraphy, *JRAS*: 466-503] Analogously, an Indus (Sarasvati-Sindhu)-type seal (squarish with a perforated button on the ridged back) with cuneiform characters may be surmised to relate to a non-Harappa (Sarasvati-Sindhu) language. The non-Harappan (Sarasvati-Sindhu) origin is surmised for a glazed steatite cylinder seal found at Tell Asmar, which shows an Indus (Sarasvati-Sindhu) motif: procession of an elephant, a rhinoceros and a crocodile. (Frankfort, 1933, pp.50-53; Asthana, 1979, p.40.) Ur III texts indicate the need for interpreters to translate the Meluhhan language.

We disagree with these these tentative interpretations; it is possible that they were epigraphs engraved by Meluhhan settlers. This possibility will have be further validated by an evaluation of the entire (though, very limited -- only a few thousands) sample of messages without committing what Gilbert Ryle calls a 'category mistake,' and by using, mainly, the semantic and image clusters of this lexicon.

An *Indian Lexicon* has been presented [http://www.hindunet.org/saraswati] as a substantial corpus of des'i_ or bha_sha_ words, most of which are very ancient. Bronze age lexemes of the lexicon assist in the process of deciphering the language of the civilization. [See notes in Appendix]. Many words are cited from *Hemachandra Des'i_* (Hem. D.), *Dhanpala Des'i_* (Dh.D.), *An Etymological Gujarati Dictionary*, *Santali dictionary*, *Encyclopaedia Mundarica*, *Tamil Lexicon*, *Kannada Dictionary*, *Jat.ki Dictionary*, *Punjabi Dictionary*, *Sindhi Dictionary* and from many other Pra_kr.it and Dravidian languagedictionaries to identify the substratum lexemes many of which can also be isolated from tat-samas or tadbhavas (from Sam.skr.tam).

Considering the remarkable consistency and stability of the script for at least over one millennium, spread across the most expansive civilization of its time, spanning considerable distances from the Sarasvati-Sindhu doab to the Tigris-Euphrates doab and with intimations of contacts with Ancient Iran and with communities within Bha_rata, it is surmised that the des'i_ or bha_sha_ of Bha_rata may provide leads.

The corpus of inscriptions of the Sarasvati Sindhu Valley (SSVC) Civilization is analyzed based on internal evidence (structure and form). Decoding proceeds from the known to the unknown, from the known cuneiform script of Mesopotamian civilization to the unknown language and script of SSVC. Decoding is progressed using external evidence (i.e. evidence external to the internal structure and form of inscriptions). The external evidence relates to the bronze age artefacts and the semantic clusters provided by the *Indian Lexicon*.

One or more Bha_rati_ya languages preserve lexemes from the early linguistic area of the civilization, in particular, the semantics of weapons made by armourers (kut.ha_ru). There are scores of other semantic categories which point to the essential semantic unity of Bha_rati_ya languages which evolved from this proto-Bha_rati_ya idiom dated to ca. 3000 BCE

bha_s.a_ speech; language; tongue; dialect; the vrija dialect, a corruption of Sanskrit; **bha_s.an.a** a speech; a discourse; an oration; a lecture; **bha_s.aka** that which speaks, implies, or indicates; **va_yaka** a dictum (cf.

va_kya) a dictum; an aphorism; **bha_s.a_jn~a_n** the science of language; philology; **bha_s.a_ntara** translation; a version; **bha_s.i_** adj. That speaks (used at the end of a compound, e.g. **bahubha_s.i_**; **bha_s.ya** a gloss, a commentary; an exposition; a scholium; annotations; comments; **bha_s.yaka_ra** a commentator; an expounder; an annotator (G.lex.) cf. **des'i_** adj. Native; born or produced in one's native country; relating to the des' or country above the gha_t.s (G.lex.)

bha_s., speak; **bha_s.ate_** speaks, says (TBr.); **bha_s.ati** (MBh.); **bha_sati** speaks, calls (Pali); **bha_site** said (As'.); **bha_s.adi** speaks (Dhp.); **bha_sai_** (Pkt.); **bha_s'n.o_** to promise (Wpah.)(CDIAL 9478).**bha_s.a_** speech (Mn.); **bha_sa_** speech, language (Pali.Pkt.); **ba_s.** word (Wg.); **ba_s.a** language (Dm.); **bas.** (Sh.D..); **bha_s.** (Ku.); **bha_s** (N.B.Mth.Kon.);; **bha_sa** song (OG.); **baha** word, saying (Si.);; **bas, baha** (Md.); **dubha_siya_** interpreter (H.)(CDIAL 9479).

sambha_s.a conversation (Gr.hyas.); **sambha_s.a_** (MBh.); **sambha_sa_** talk (Pali.Pkt.); **sambha_sa** (Pkt.); **habaya**, pl. haba lawsuit, dispute, complaint (Si.)(CDIAL 12968).

des'i_ (scilicet. bha_sha_) f. the vulgar dialect of a country (opp. t sam.skr.ita) provincialism; des'i_tva n. ka_vya_d.; Des'in.; des'i_kos'a = vocabulary of provincialism; des'i_na_mama_la_ name of a dictionary of provincialism by Hemac.; des'i_praka_s'a name of a dictionary of provincialisms Sch. On Mr.cch.; des'i_s'abdasam.graha m. = des'i_na_mama_la_Cat.

bha_sha_ f. speech, language (esp. common or vernacular speech as opp. to Vedic or in later times to Sanskrit) Nir.; Pa_n.; Mn.; MBH.; any Pra_kr.it dialect or a particular group of 5 of them (viz. Ma_ha_ra_sht.ri_, S'auraseni_, Ma_gadhi_, Pra_cya_ and Avanti_ also called Pan~ca-vidha_ Bha_sha_; description, definition, Bhag.; (in law) accusation, charge, complaint, plaint, Dhu_rtas.; Ya_jn~. Sch.; Name of Sarasvati_; Bha_sha_-sama 'Pra_kr.it-like' a sentence as arranged that it may be either Sanskrit or Pra_kr.t, Sa_h.; bha_shika mfn. belonging to common or vernacular speech Nir.; f. speech language; bha_shita spoken, uttered, said; spoken to, addressed Mn.; MBh.; a speech, language, talk.

pra_kr.ita original, natural, artless, normal, ordinary, usual, S'Br.; low, vulgar, unrefined, Mn.; MBh.; provincial, vernacular, pra_kritic,Vcar.; (in Sa_m.khya) belonging to or derived from Prakriti or the original element. [Extracts from Monier Williams' *Sanskrit-English Dictionary* 1899]

Grouping the inscribed objects of the civilization

The inscribed objects can be grouped into sets based on selected criteria. Corpus organizers (e.g., Mahadevan, Parpola) have categorized the objects by the site where the object was found and by type of object (e.g. copper plate, seal, seal impression, tablet in bas relief, incised tablet, pottery graffiti). They have also attempted to further sub-group the objects by pictorial motifs inscribed on them and by orthographic styles used to depict the motifs.

Considering that there is no apparent correlation between site where the objects were found and the messages conveyed (through pictorial motifs and texts), other categorization techniques may be appropriate to further unravel the code. One technique to identify 'sets' or 'categories' among the inscribed objects taken as total entities (and not, dissecting the objects further by the occurrences of sequences of 'signs').

The identification of such inscribed object 'sets' or 'categories' will help in narrowing down the set of lexemes which may provide a '*rebus*' match with the pictorials (both pictorial motifs and signs being treated as pictorials) – lexemes which provide both substantives as well as their homonyms – lexemes taken from the limited corpus of languages within the linguistic area confined by the geographic domain of Sindhu and Sarasvati River valleys.

Milakkhu, meluhha and copper

"Gordon Childe refers to the 'relatively large amount of social labour' expended in the extraction and distribution of copper and tin', the possession of which, in the form of bronze weaponry, 'consolidated the positions of war-chiefs and conquering aristocracies' (Childe 1941: 133)... With the publication of J.D. Muhly's monumental Copper and Tin in 1973 (Muhly 1973: 155-535; cf. 1976: 77-136) an enormous amount of data on copper previously scattered throughout the scholarly literature became easily accessible... cuneiform texts consistently distinguish refined (**urudu-luh-ha**) [cf. **loha** = red, later metal (Skt.)] from unrefined copper (**urudu**) strongly suggests that it was matte (impure mixture of copper and copper sulphide) and not refined copper that was often imported into the country. Old Assyrian texts concerned with the import of copper from Anatolia distinguish **urudu** from **urudu-sig**, the latter term appearing when written phonetically as dammuqum, 'fine, good' (CAD D: 180, s.v. dummuqu), and this suggests that it is not just 'fine quality' but actually 'refined' copper that is in question... TIN. In antiquity tin (Sum. **nagga**/[AN.NA], Akk. **annaku**) was important, not in its own right, but as an additive to copper in the production of the alloy bronze (Sum. **sabar**, Akk**. siparru**) (Joannes 1993: 97-8)... In some cases, ancient recipes call for a ratio of tin to copper as high as 1: 6 or 16.6 per cent, while other texts speak of a 1:8 ratio or 12.5 per cent (Joannes 1993: 104)... 'there is little or no tin bronze' in Western Asia before c. 3000 BCE (Muhly 1977: 76; cf. Muhly 1983:9). The presence of at least four tin-bronzes in the Early Dynastic I period... Y-Cemetery at Kish signals the first appearance of tin-bronze in southern Mesopotamia... arsenical copper continued in use at sites like Tepe Gawra, Fara, Kheit Qasim and Ur (Muhly 1993: 129). By the time of the Royal Cemetery at Ur (Early Dynastic IIIa), according to M.Muller-Karpe, 'tin-bronze had become the dominant alloy' (Muller-Karpe 1991: 111) in Southern Mesopotamia... Gudea of Lagash says he received tin from Meluhha... and in the Old Babylonian period it was imported to Mari from Elam..."

Among synonyms for copper (**ta_mra, tutha, bha_skara, ravi, s'ulva, s'ulvaka**), **s'ulva** is the most frequently used term in a work of 10^{th}-12^{th} cent. CE. (M. Roy and BV Subbarayappa, 1976, *Rasarnava-kalpa*, Calcutta) Hence, s'ulbasu_tra-s may be interpreted as the manuals for processing copper, s'ulba. Rasa_rn.avakalpa treats **s'ulvaveda** as the transmutation of copper into noble metals.

Lead was used for exchange according to S'atapatha Bra_hman.a (S'Br. 5.1.2.14): "Now when he buys the king (Soma), he at the same time buys for a piece of lead the Parisruta (immature spirituous liquor) from a long-haired man nearby towards the south" (Eggeling 1894, II:9; Weber 1849: 424). In *Suttavibhanga* XI-2.1 and XII (Horner 1957, I; 241), there is a reference to the use of **bronze** as a medium of exchange: "if a nun is bargaining for a light cloth, she may bargain for one (worth) at most two and a half 'bronzes'". In the ja_taka-s, **kam.sa** is the term used or bronze; **tamba, tamba loha** and **loha** for copper; vatta loha may refer to an alloyed metal (Horner 1964, II: 85); **vattaka_ra**-s are workers in alloys (Horner 1964, II: 172). *Cullavagga* V.28.1 (Oldenberg 1889, II: 135) mentions dealers in bronze articles. By metathesis, vattaka_ra becomes **vartaka**, a generic name for a trader; thus **varta-loha** or **vattaloha** may be interpreted as 'traded copper-alloy'. Periplus mentions Broach or Barygaza as the port from which copper was dispatched, along with other commodities, to Persian ports (RC Majumdar, 1960, *The classical accounts of India,* Calcutta: 289).

Amarakos'a (2.9.97; K.G. Oka, *The Amarakos'a*, repr. Delhi, 1981, p. 155) reads: **atha ta_mrakam, s'ulvam mlecchamukham dvyas.t.a varis.t.h odumbara_n.i ca**: four words are given as synonyms: **ta_mraka, s'ulva, mlecchamukham, udumbaram**. The section appended to the Vedic Kalpa or S'rautasu_tra on the rules of making fire-altars, their diagrams and geometry is referred to as **s'ulbasu_tra**; if s'ulva refers to copper, the su_tra or rajju, the measuring rope should be interpreted as copper wire. Another interpretation could be: rules for copper (in alchemical terms). Kaut.ilya's *Arthas'a_stra* (ca. 3rd cent. BC) recognizes **s'ulba** as copper. (Kangle, R.P., 1960, *The Arthas'a_stra*, Bombay; 2.13.16.44; 2.14.20-22, 30-31). cf. Edgerton, P., 1970, *Buddhist Hybrid Sanskrit Dictionary*, repr. Delhi, p.531: **ta_mraloham ca sulvam**; p. 533, **sasulbika** = coppersmith.

Abhidha_na Cinta_man.i of Hemachandra states that mleccha and mleccha-mukha are two of the twelve names for copper: ta_mram

(IV.105-6: **ta_mram mlecchamukham s'ulvam rakt tam dvas.t.amudumbaram; mlecchas'a_varabheda_khyam markata_syam kani_yasam; brahmavardhanam varis.t.ham si_santu si_sapatrakam**).

Theraga_tha_ in Pali refers to a banner which was dyed the colour of copper: milakkhurajanam (The Thera andTheriga_tha_, PTS, verse 965: milakkhurajanam rattam garahanta_ sakam dhajam; tithiya_nam dhajam keci dha_ressanty avada_takam; K.R.Norman, tr., Theraga_tha_: Finding fault with their own banner which is dyed the colour of copper, some will wear the white banner of sectarians).[cf. Asko and Simo Parpola, On the relationship of the Sumerian Toponym Meluhha and Sanskrit Mleccha, *Studia Orientalia*, vol. 46, 1975, pp. 205-38).

Dialects of Mleccha

Copper-smelting had to occur on the outskirts of a village. Hence, the semantic equivalence of *milakku* as copper in Pali language.

The close semantic clustering of tools of trade of a smelter, metal-worker in Mundarica, Gujara_ti_, Mara_t.hi_, Pali and Punjabi lexemes point to the substratum indic, the linguistic area of the civilization – this dialect may be called **Mleccha** and the writing system, **mlecchita vikalpa**. It is notable that while **milakkhu** means copper in Pali language and **mleccha_khya** in Sam.skr.tam language also means copper.

Mleccha (Skt.) is *milakkha or milakku* (Pali) to describe those who dwell on the outskirts of a village. (Shendge, Malati, 1977, *The civilized demons: the Harappans in Rigveda*, Abhinav Publications). A milakkhu is disconnected from va_c and does not speak Vedic; he spoke Prakrt. **na a_rya_ mlecchanti bha_s.a_bhir ma_yaya_ na caranty uta:** aryas (i.e., cultured people) do not speak with crude dialects like mlecchas, nor do they behave with duplicity (MBh. 2.53.8). a dear friend of Vidura who was a professional excavator is sent by Vidura to help the Pa_n.d.avas in confinement; this friend of Vidura has a conversation with Yudhisthira, the eldest Pa_n.d.ava: **kr.s.n.apakse caturdasyàm ràtràv asya purocanah, bhavanasya tava dvàri pradàsyati hutàsanam, màtrà saha pradagdhavyàh pa_n.d.avàh purus.ars.abhàh, iti vyavasitam pàrtha dha_rtara_s.t.ra_sya me šrutam, kiñcic ca vidurenkoto mleccha-vàcàsi pa_n.d.ava, tyayà ca tat tathety uktam etad visvàsa ka_ran.am**: on the fourteenth evening of the dark fortnight, Purocana will put fire in the door of your house. ‘The Pandavas are leaders of the people, and they are to be burned to death with their mother.’ This, Pa_rtha (Yudhis.t.ira), is the determined plan of Dhr.tara_s.t.ra’s son, as I have heard it. When you were leaving the city, Vidura spoke a few words to you in the dialect of the mlecchas, and you replied to him, ‘So be it’. I say this to gain your trust.(MBh. 1.135.4-6). This passage shows that there were two groups distinguished by dialects and ethnicity: Yudhis.t.ra and Vidura – and both could understand mleccha dialect – mleccha-vàcàsi.

Dialect which Vidura and Yudhis.t.ira spoke: Meluhhan!

This passage from the Mah_bha_rata also shows that there were two individuals, ‘a_rya-s’ (or, people characterized by nobility of culture) distinguished by linguistic competence, Yudhis.t.ira and Vidura. Both could speak the languages of the mleccha-s; in contrast, Dhr.tara_s.t.ra and his people are NOT connoted as ‘a_rya-s’ only because of their behavioural traits.

It is a historic blunder in philological studies related to the early periods of Bha_rata to equate ‘a_rya-s’ with a particular group of people. The term, a_rya in R.gveda is used only to connote nobility or rectitude in behaviour.

Melakkha, ocean island-dwellers

According to the great epic, Mlecchas lived on islands: **sa sarva_n mleccha nr.patin sa_gara dvi_pa va_sinah, aram a_ha_ryàm àsa ratna_ni vividha_ni ca, andana aguru vastra_n.i man.i muktam anuttamam, ka_ñcanam rajatam vajram vidrumam ca maha_ dhanam**: (Bhima) arranged for all the

mleccha kings, who dwell on the ocean islands, to bring varieties of gems, sandalwood, aloe, garments, and incomparable jewels and pearls, gold, silver, diamonds, and extremely valuable coral… great wealth. (MBh. 2.27.25-26).

Elsewhere in the Great Epic we read how Sahadeva, the youngest of the Pa_n.d.ava brothers, continued his march of conquest till he reached several islands in the sea (no doubt with the help of ships) and subjugated the Mleccha inhabitants thereof.(1)
Brahma_n.d.a 2.74.11, Brahma 13.152, Harivam.s'a 1841, Matsya 48.9, Va_yu 99.11, cf. also Vis.n.u 4.17.5, Bha_gavata 9.23.15, see Kirfel 1927: 522:

pracetasah putras'atam ra_ja_nah sarva eva te // mlecchara_s.t.ra_dhipa_h sarve udi_ci_m dis'am a_s'rita_h

which means, of course, not that these '100' kings conquered the 'northern countries' way beyond the Hindukus. or Himalayas, but that all these 100 kings, sons of praceta_s (a descendant of a 'druhyu'), kings of mleccha kingdoms, are 'adjacent' (a_s'rita) to the 'northern direction,' -- which since the Vedas and Pa_n.ini has signified Greater gandha_ra. Kirfel, W. Das Pura_n.a Pan~calaks.an.a. Bonn : K. Schroeder 1927.

Erythraen Sea and Meluhha

Fifth century BC Greek historian, Herodotus referred to the body of water which linked Africa, the Arabian Peninsula, Iran and the Indian subcontinent as the Erythraen sea. This sea includes the Red sea, the Gulf of Aden, Indian Ocean, Arabian Sea, Gulf of Oman and the Persian or Arabian Gulf.

"The land of Melukkha shall bring carnelian, desirable and precious, sissoo-wood from Magan, excellent mangroves, on big-ships!" said a statement in the Sumerian myth, *Enki and Ninkhursag* (cf. lines 1-9, trans. B. Alster). "In the late Early Dynastic period (about 2500), Ur-Nanshe, king of the Sumerian city-state Lagash, "had ships of Dilmun transport timber from foreign lands" to his capital (modern Tell al-Hiba), just as a later governor of Lagash, named Gudea, did in the mid-twenty-first century. In the early twenty-fourth century, Lugalbanda and Urukagina, two kings of Lagash, imported copper from Dilmun and paid for it with wool, silver, fat, and various milk and cereal products... That these (round stamp) seals were used in economic transactions is proven by the discovery of two important tablets bearing their impressions. One of these tablets was found at Susa, and dates to the first half of the second millennium. It is a receipt for goods, including ten minas of copper (about eleven pounds or five kilograms). The second tablet, in the Yale Babylonian Collection, is dated to the tenth year of Gungunum of Larsa (modern Tell Senkereh), that is, around 1925, and records a consignment of goods (wool, wheat, and sesame) prior to a trading voyage that almost certainly had Dilmun as its goal. Dilmun seals characteristically depict two men drinking what could be beer through straws, or two or three prancing gazelles...a merchant named Ea-nasir, who is identified as one of the a_lik Tilmun, or "Dilmun traders"... Ea-nasir paid for Dilmun copper with the textiles and silver that he received from the great Nanna-Ningal temple complex at Ur...The Mari texts contain several references to Dilmunite caravans...Melukkha was a source of wood (including a black wood thought to have been ebony), gold, ivory, and carnelian...Melukkha was accessible by sea...Sargon of Akkad...boasts that ships from Dilmun, Magan and Melukkha docked at the quay of his capital Akkad...While points of contact with other regions are attested, they can hardly have accounted for the strength and individuality of civilization in the subcontinent...Unmistakably Harappan cubical weights of banded chert (based on a unit of 13.63 grams) are known from a number of sites located around the perimeter of the Arabian GUlf, including Susa, Qalat al-Bahrain, Shimal (Ras al-Khaimah), and Tell Abraq (Umm al-Qaiwain)...an inscribed Harappan shard has been found at Ras al Junayz... Harappan pottery has been found at several sites throughout Oman and the United Arab Emirates...A "Melukkhan village" in the territory of the ancient city-state of Lagash, attested in the thirty-fourth year of the reign of Shulgi (2060), may have been a settlement of Harappans, if the identification with the civilization of the Indus Valley is correct...But...there is little evidence of a Sumerian, Akkadian, or Babylonian presence in the Indus Valley... That the language of Melukkha was unintelligble to an Akkadian or Sumerian speaker is clearly shown by the fact that, on his cylinder seal, the Akkadian functionary Shu-ilishu is identified as a "Melukkhan translator"...the word "Melukkha" appears occasionally as a personal name in

cuneiform texts of the Old Akkadian and Ur III periods. "(Potts, D., 1995, Distant Shores: Ancient Near Eastern Trade, in: Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, Vol. I, pp. 1451-1463).

Dilmun, Makkan, Meluhha

"Around 2500 BC, Dilmun is first referred to as a supplier of wood, by Urnanshe, King of Lagash. His successors, Lugalanda and Uri'inimgina (before 2350 BC) dispensed various textiles, resins, oil and silver out of the state storehouses to merchants of Lagash. The merchants were to trade the goods in Dilmun for copper and other wares, such as onions, linen, resin and bronze 'marine spoons'... During the succeeding Old Akkadian Period (2334-2193 BC) the Mesopotamians were no longer the only traders to visit Dilmun. The seas were open to all contries and seafaring merchants from the distant lands of Dilmun, Meluhha and Makkan tied up at Akkad's quay, during Sargon's reign (2334-2279 BC). Copper was shipped directly from Makkan; people from Meluhha are mentioned in written sources as interpreters and seamen. During the reign of Gudea of Lagash, copper, diorite and wood were delivered from Makkan and Meluhha delivered rare woods (such as Sissoo wood), gold, tin, lapis lazuli and carnelian to Lagash. Naramsin warred against Makkan; Mesopotamia strove for predominance in the area...

“Ships from Makkan did not sail to the north. It appears that one or more trading centers in Makkan were visited during the voyages where Makkan wares-- chiefly copper-- and luxury items from Meluhha were bartered. Therefore it appears that many wares referred to in the written sources as 'Makkan goods', actually were materials originally brought from Meluhha. Through trans-shipment in Makkan, these goods were then later referred to as coming from Makkan; the same confusion occurs later with materials from Dilmun... Both the goods and the foreign merchants trading in Dilmun's markets influenced forms of trade. The cuneiform characters had been taken over from the Sumerians, but the system of weights used in barter derived from the Indus Valley culture. (Michael Road, Weights on the Dilmun Standard, *Iraq*, vol. 44, 1982, 137-141). Spreading out from Dilmun, this system of weights became very popular and was used as far away as Ebla in Syria... Dilmun is mentioned for the last time in written records, during the reign of Samsu'liluma in the year 1744 BC, with the entry...'12 measures of purified copper from Alasia and Dilmun'. With this notice, the new supplier of copper is also mentioned; Alasia (Cyprus) would control the Mediterranean and Near Eastern market for copper for the next millennium. Alasia's rise did not occur in isolation; obviously a lengthy series of crises led to the collapse of the existing system in the East. Unlike Dahlak, Dilmun did not cease to exist; Tukulti-Ninurta refers to himself as 'King of the Upper and Lower Seas' and ruler over Dilmun and Meluhha. However, Meluhha and Makkan are no longer referred to in written records in the old sense.

"...More recent arcaheological researches in East Arabia have brought to light many finds which are related to the presence of Indus valley people. In the settlements of Hili 8 and Maysar-1, both of which have been investigated, Indus valley pottery is frequently found. Seals with Indus valley script and typical iconography indicate influences in Makkan down to the level of business organization. Marks identifying pottery in Makkan were taken from those used in the Indus valley, including the use of the signs on pottery used in the Indus valley. The discovery of a sea-port-- which may be ascribed to the Harappans-- at Ra's al-Junayz on Oman's east coast by an Italian expedition would seem to indicate that trade routes should be viewed in a more differentiated fashion than has been done upto now."

[Sege Cleuziou, Preliminary report on the second and third excavation campaigns at Hili 8, Archaeology in the United Arab Emirates, vol. 2/3, 1978/79, 30ff.; Gerd Weisgerber, '...und Kupfer in Oman', Der Anschnitt, vol. 32, 1980, 62-110; Gerd Weisgerber, Makkan and Meluhha- 3rd millennium copper production in Oman and evidence of contact with the Indus valley, Paper read in Cambridge 1981 and to appear in South Asia Archaeology 1981; Maurizio Tosi, A possible Harappan seaport in Eastern Arabia: Ra's al-Junayz in the Sultanate of Oman, Manuscript]. Gerd Weisgerber, Dilmun--a trading entrepot; evidence from historical and archaeological sources, 135-142 in: Shaikha Haya Ali Al Khalifa and Michael Rice (eds.) Bahrain through the ages: the archaeology, London, KPI, 1986. [Simo Parpola/Asko Parpola/Robert H. Brunswig, The Meluhha village. evidence of acculturation of Harappan traders in the later third millennium Mesopotamia?, *Journal of the Economic and Political History of the Orient*, vol. 20, 1977, 129-165. 'If the tablets and their sealed

envelopes had not been found, in fact, we might never have suspected the existence of a merchant colony.' (T. Ozguc, An Assyrian trading outpost, *Scientific American*, 1962, 97 ff.) cited after Lamberg-Karlovsky 1972).]

The acculturation of Meluhhans (probably, people from the Sarasvati-Sindhu doab and coastal regions of Makran Coast, Gulf of Kutch and Gulf of Khambat) residing in Mesopotamia in the late third and early second millennium BC, is noted by their adoption of Sumerian names (Parpola, Parpola and Brunswig 1977: 155-159). "The adaptation of Harappan motifs and script to the Dilmun seal form may be a further indication of the acculturative phenomenon, one indicated in Mesopotamia by the adaptation of Harappan traits to the cylinder seal." (Brunswig et al, 1983, p. 110).

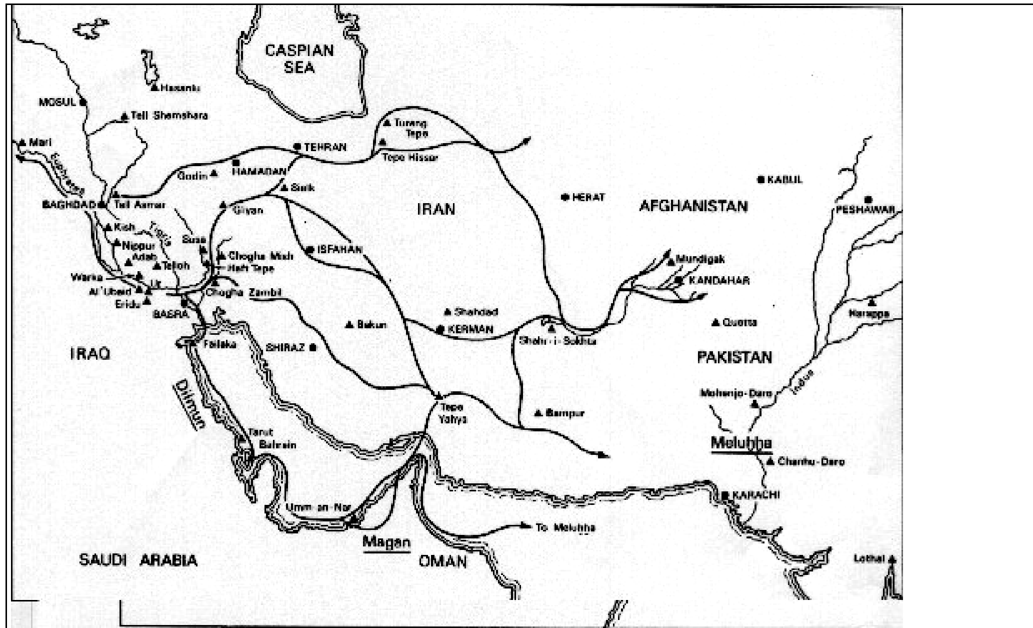
Identification of Makkan, Magan

"Oman peninsula/Makkan lies half way between the two main civilization centres of the third millennium Middle East: Mesopotamia and the Indus valley... an increasing influence of Harappan civilization on Eastern Arabia during the last two centuries of the third millennium. This influence seems to strengthen during the early second millennium where proper Harappan objects are found all over the Oman peninsula: a cubic stone weight at Shimal, sherds of Harappan storage jars on several sites including Hili 8 (period III). Maysar and Ra's Al-Junayz bears a Harappan inscription and Tosi (forth.) has emphasized the importance of this discovery for the knowledge of Harappan control over the Oman Sea." [Serge Cleuziou, Dilmun and Makkan during the third and early second millennia BC, 143-155 in: Shaikha Haya Ali Al Khalifa and Michael Rice (eds.) *Bahrain through the ages: the archaeology*, London, KPI, 1986.]

A series of articles and counters had appeared in the *Journal of the Economic and social history of the Orient*, Vol.XXI, Pt.II, Elizabeth C.L. During Caspers and A. Govindankutty countering R.Thapar's dravidian hypothesis for the locations of Meluhha, Dilmun and Makan; Thapar's A Possible identification of Meluhha, Dilmun, and Makan appeared in the journal Vol. XVIII, Part I locating these on India's west coast. Bh. Krishnamurthy defended Thapar on linguistic grounds in Vol. XXVI, Pt. II: *mel-u-kku =3D highland, west; *tel.man. (=3D pure earth) ~ dilmun; *makant =3D male child (Skt. vi_ra =3D male offspring. [cf. K. Karttunen (1989). India in Early Greek Literature. Helsinki, *Finnish Oriental Society. Studia Orientalia*. Vol. 65. 293 pages. ISBN 951-9380-10-8, pp. 11 ff et passim. Asko Parpola (1975a). Isolation and tentative interpretation of a toponym in the Harappan inscriptions. *Le dechiffrement des ecritures et des langues*. Colloque du XXXIXe congres des orientalistes, Paris Juillet 1973. Paris, *Le dechiffrement des ecritures et des langues. Colloque du XXXIXe congres des orientalistes*, Paris Juillet 1973. 121-143 and Asko Parpola (1975b). "India's Name in Early Foreign Sources." *Sri Venkateswara University Oriental Journal*, Tirupati, 18: 9-19.]

Mleccha trade was first mentioned by Sargon of Akkad (Mesopotamia 2370 BCE) who stated that boats from Dilmun, Magan and Meluhha came to the quay of Akkad (Hirsch, H., 1963, Die Inschriften der Konige Von Agade, Afo, 20, pp. 37-38; Leemans, W.F., 1960, Foreign Trade in the Old Babylonian Period, p. 164; Oppenheim, A.L., 1954, The seafaring merchants of Ur, *JAOS*, 74, pp. 6-17). The Mesopotamian imports from Meluhha were: woods, copper (ayas), gold, silver, carnelina, cotton. Gudea sent expeditions in 2200 BCE to Makkan and Meluhha in search of hard wood. Seal impression with the cotton cloth from Umma (Scheil, V., 1925, Un Nouvea Sceau Hindou Pseudo-Sumerian, RA, 22/3, pp. 55-56) and cotton cloth piece stuck to the base of a silver vase from Mohenjodaro. (Wheeler, R.E.M., 1965, Indus Civilization) are indicative evidence.

Umma seal impression shows a Meluhha trader in Mesopotamia; there is no comparable evidence of a Mesopotamian trader in Meluhha. Babylonian and Greek names for cotton were: **sind, sindon**. This is an apparent reference to the cotton produced in the black cotton soils of Sind and Gujarat.

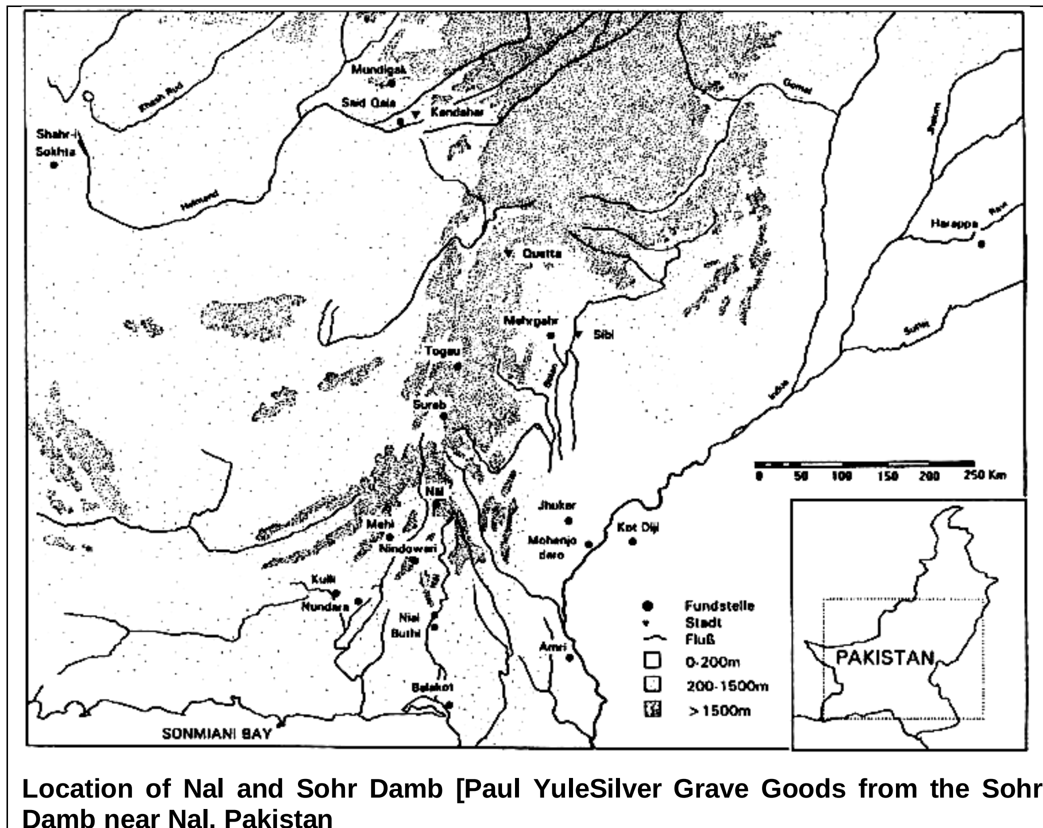


Interaction areas. After Fig. 2 in P.R.S. Moorey, 1994, *Ancient Mesopotamian Materials and Industries,* Oxford, Clarendon Press.

Euphrates River was a link in the maritime trade of the eastern Mediterranean with that of the Gulf and Meluhha beyond. The Sumerian 'colonies' on the northern bend of the Euphrates were the conduits to carry the culture of Uruk to Egypt and linked the head of the Gulf to the Egyptian Delta through the Syrian ports (Moorey, 1990). The famous bilingual inscription of Sargon of Akkad (ca. 2234-2279 BC) sets out in geographical order from south-east to north-west the trading posts: Meluhha, Magan, Dilmun, Mari, Yarmuti, and Ebla: that is, from the Indus to the Taurus -- the Indus which was also linked with central Asia through Afghanistan. (Hirsch 1963: 37-8).

Meluhha and interaction areas

Ubaid: ca. 5500-4000 BCE
Uruk ca. 4000-3000 BCE
Early Dynastic I: ca. 3000-2750 BCE
Early Dynastic II: ca. 2750-2600 BCE
Early Dynastic III: ca. 2600-2350 BCE
Akkadian (or Sargonic): ca. 2350-2000 BCE
Ur III: ca. 2100-2000
Isin-Larsa/Old Babylonian/Old Assyrian: ca. 2000-1600 BCE
Kassite/Mitannian/Middle Babylonian/Middle Assyrian: ca. 1600-1000 BCE
Neo-Assyrian: ca. 1000-612 BCE
Neo-Babylonian: ca. 612-539 BCE
Achaemenid Persian: ca. 539-330 BCE



Location of Nal and Sohr Damb [Paul YuleSilver Grave Goods from the Sohr Damb near Nal, Pakistan

Vratya

Mleccha-s could be related to the vratya-s of Magadha. Reference to Satvants of the Chambal valley may relate to the term, *satvata*, used in the *pan~cara_tra* tradition and *vra_tya-s* are associated with the people of Magadha.

"The literature is replete with the names of clans. The most powerful among them, commanding the greatest respect, was the Kuru-Pañcala, which incorporated the two families of Kuru and Puru (and the earlier Bharatas) and of which the Pañcala was a confederation of lesser-known tribes. They occupied the Upper Doab and the Kuruksetra region. In the north the Kamboja, Gandhara, and Madra groups predominated. In the middle Ganges Valley the neighbours and rivals of the Kuru-Pañcalas were the Kasi, Kosala, and Videha, who worked in close cooperation with each other. The Magadha, Anga, and Vanga peoples in the lower Ganges Valley and delta were outside the Aryan pale and regarded as mlecchas. Magadha (Patna and Gaya districts of Bihar) is also associated with the vratya people, who occupied an ambiguous position between the aryas and mlecchas. Other mleccha tribes frequently mentioned include the Satvants of the Chambal valley and, in the Vindhyan and northern Deccan region, the Andhra, Vidarbha, Nisadha, Pulinda, and Sabara. The location of all these tribes is of considerable historical interest, because they gave their names to the geographic area."
http://www.britanica.com/bcom/eb/article/9/0,5716,121169+2+111197,00.html

Fire-workers of the Rigveda

The fire-workers of the Rigveda, living on the banks of River Sarasvati, worked on one mineral: electrum (soma). The fire-workers were **vra_tya** and **ya_jn~ika**.

The Sarasvati river (which nurtured the bronze-age civilization) is adored in the Rigveda.

The desiccation of the Sarasvati river (ca. 1700-1300 BCE) led to the migrations of populations away from the banks of this river and principally eastwards and southwards.

The fire-workers of the Sarasvati-Sindhu civilization who worked with minerals and the Rigvedic peoples who specialized in processing one mineral, electrum or soma, migrated away from the Sarasvati river due to the desiccation of the river.

This leads to the formulation of two hypotheses:

A cooperative society and a continuous culture had existed right from the chalcolithic- age through the bronze-age to the historical periods on the Sarasvati-Sindhu doab and the rest of India.

Emergence of *lingua franca* in Bharat

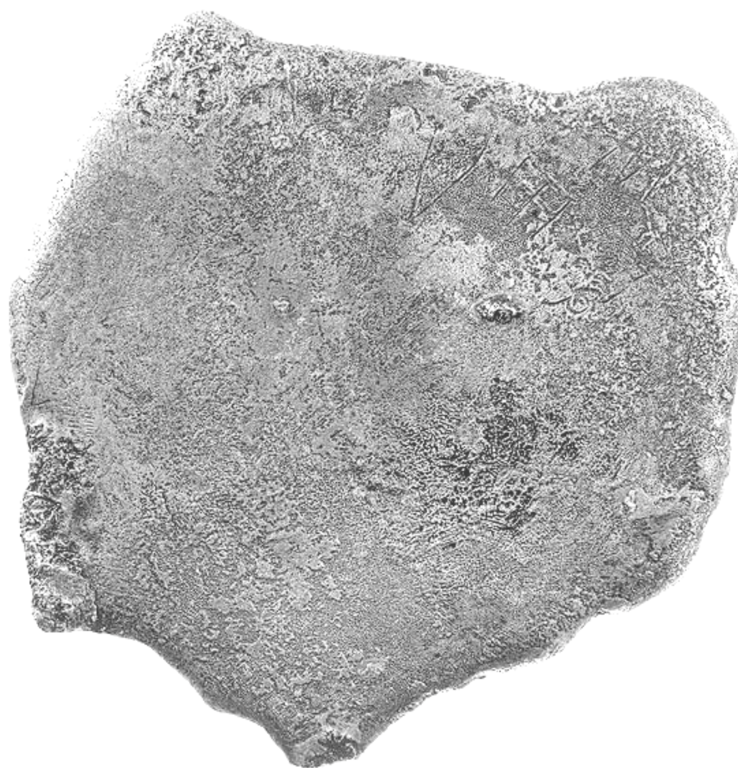
A *lingua franca* had emerged in the doab ca. 3000 BCE with intense interaction and resultant cross-borrowings of lexemes of an expansive contact zone (from Tigris-Euphrates to Ganga, from the Caucus mountains to the Gulf of Khambat, from Kashmir to Kanya_kumari) constituting the Sarasvati-Sindhu doab and the rest of Bha_rata as an Bha_rati_ya Linguistic Area.

The assumption for establishing this concordance among lexemes removed in time, by over 1 millennium, is that the names of the arms and armour of the linguistic area, ca. 5500 BP continued, as parole, in the ancient languages of Bharat, by a hereditary tradition nurtured among the artisans (vis'vakarma) and warriors (ks.atriya) alike and by the literary tradition of *Dhanurveda Sam.hita_* and related texts.

When the River Sarasvati_ got desiccated between ca. 3900 and 3500 BP, many people of the River Basin moved into the Ganga-Yamuna doab and south of Gujarat to the Godavari River Basin and further south along the coast of Sindhu Sa_gara (Arabian Sea) and also moved west of Ga_ndha_ra in Afghanistan, resulting in the naming of a small river as Haraquaiti, in remembrance of River Sarasvati. Similar instances of cherishing the legacy of River Sarasvati are noticed in the naming of rivers near Pus.kar (Ajmer), and near Little of Rann of Kutch (Siddhapura) also as Sarasvati. The mother who nourished the forefathers of many Bha_rati_yas could not be forgotten. When a mother prays to river godesses, she invokes the names of Gan:ga_, Yamuna_, Sarasvati_; when she goes to a ti_rthaya_tra and notices a san:gamam of two rivers, she learns from the folklore and folk traditions, that the san:gamam is triven.i, the third river being the antahsalila_ Sarasvati_ (the Sarasvati_ which flows underground). The sthala pura_n.a of the Sarasvati_ temple at Basara (Vya_sapura) on the banks of River Godavari (near Adilabad district, Andhra Pradesh) states that the mu_rti of Sarasvati_ was made by Vya_sa taking three mus.t.is (hand-fuls) of sand from the river bed. There is also a temple for Sarasvati_ on the banks of Cauvery in Ku_ttanu_r, near Swa_mimalai (the pilgrimage centre for E_raka Subrahman.ya, Ka_rttikeya).

The formulation of these hypotheses is a plea for unravelling further the as yet untold story of the formation of Bha_rati_ya languages as an exercise in general semantics.

Silver ingot with Hittite (?) hieroglyphs



Ingot with Hittite hieroglyphs, 15th–13th century B.C.; Hittite period Central Anatolia Silver; W. 3 1/4 in. (8.3 cm).

Substantive: *bed.a* 'brick' (Kuwi); *ped.d.a* clod, lump of earth (Te.); *pen.t.e, hen.t.e, hen.d.e, pet.t.a, pet.t.e* clod, lump (Ka.); *hen.t.e, ent.e* clod of earth (Te.)(DEDR 4394)

Glyph: *bhed.a* 'ram'; *bhindi jel* 'a mythical deer'; *bhid.i jel* 'a deer'; *jel* 'a deer'; *bhid.i* 'a sheep, a ewe'; (Santali) **bhed.** A sheep; a goat (G.) **bhed.a hako** a species of fish (Santali)

bed.a 'either of the sides of a hearth' (G.) **bhin.d.a** a lump, applied especially to the mass of iron taken from the smelting furnace; *bhin.d.ia, bhin.d.* = a faggot, a bundle of anything (Santali.lex.) [Note the bundle of ?hayrick shown on the platform where a horned, bangled person sits].

Substantive: *bi_d.u* dross, alloy of iron (Tu.); iron filings or dust (Te.)(DEDR 4218)

Glyph: *pend.a* 'buttock'; Substantive: *bed.a* 'ingot'; *kokr.e kol* ('wry-faced tige'r); Rebus: stone furnace (or smithy)
Glyph: *pend.a* 'buttock' (Pa.); *pe_nd.a_* female organ, buttock (Go.); *pe_n.d.a_* anus (Go.); *pind.ari* rectum (Kui)(DEDR 4398). [cf. glyphs of standing persons ligatured to the buttocks of a bovine.]
Glyph: *pe_t.i* hermaphrodite (Ta.); *pe_d.i* id. (Ka.Te.); *pot.a_* id. (Skt.)(DEDR 4434).
Glyph: *hen.d.a* vinous liquor or toddy extracted from the wild date tree (Ka.); toddy (Tu.); *pend.om* rice-beer (Ga.); *pen.d.am kalu* id. (Kond.a)(DEDR 4397).

Glyph: *bhindran:* 'to fall to the ground, to knock down', *bindar.* 'to fall down, to collapse', *bindr.an* 'to fall or tumble down backwards from a standing or sitting position' (Santali)

Glyph: *pin.d.i* 'platform' (Santali)
Glyph: *bhin.d.ia* 'the finishing thatch put on the ridge of a roof' (Santali)
Glyph: *bindi* 'a spider' (Santali)
Glyph: *bhin.d.i* 'sheaf', *bhin.d.ia* 'a faggot, a bundle of anything', **bin.d.a** = a sheaf, a bundle; to make into sheaves or bundles (Santali.lex.) bindad.i_ a parcel, a bundle (G.lex.)[Note the clump or sheaf on the platform on which a horned person is *seated].
Glyph: *bhidia* 'a spy'; *bhiduk* 'a spy, a pretender' (Santali)
Substantive: *bed.a* 'ingot' **pin.d.a** = a lump; a quantity, collection (G.lex.) bhin.d.a = a lump applied especially to the mass of iron taken from the smelting furnace (Santali.lex.)
bhekhad. A clod; a lump of clay; a mass (G.)

basla = a certain kind of large fish (Santali.lex.)

basla = an adze, an axe with blade at right angles to handle; chutar basla = an adze fixed to the handle with an iron cramp, often with a square back, so that the instrument may be used both as an adze and as an axe (Santali); ba_sila_ (H.)(Santali.lex.Bodding) va_s'i pointed knife or adze (RV.); va_si_ adze (Pkt.); wa_s (Ash.); wos (Kt.); wusik (Pr.); wa_cek (Pas.); ba_si (WPah.B.Or.); vaha, va_-ya axe (Si.); e_seli adze (Pas.); behil, behalo (WPah.); basilo (N.); ba_risi (Or.); basila_ (Bi.); ba~_sila_ (H.); va~_slo (G.); wa~_soli adze (Gaw.)(CDIAL 11588). basla a small adze (Santali.lex.) va_cci, va_ycci, va_t.ci adze (Ta.); va_cci adze, scraper (Ma.); po.d.c adze (To.); ba_ci id. (Ka.); ba_ci, ba_ji (Tu.)(DEDR 5339). basi, base a pointed object; the tongue of a balance (Ka.); vad.i sharpness; vasi a spike, a wooden pin (Te.); vaci, vai, val. sharpness; the point or edge of a thing; a pointed stake; a sword; a trident (Ta.); basidu, basadu that which is pointed, sharp, keen, or acute (Ka.); base a small pointed object that sticks in the ground, a stubble of togari etc. (Ka.M.)(Ka.lex.)

man:gri, man:gori, man:gari = the fish (in songs)(Santali.lex.Bodding) man:gri = a certain fish, clarius bactrachus; man:gri hako reak cu_ra_k do banuktakon = the mangri fish has no scales (Santali); maguri_ (H.); man:gri baha = the gills of the mangri fish; man:gri goco = adj. The beard of the mangri fish; a moustache twirled up at both nds; having such beard(Santali.lex.)

man:gar. = the alligator, crocodilus palustris; man:gar.gupiye calaoena = he has gone to herd the alligators (he is dead) [connected with the custom of throwing the ashes of a funeral pyre into a tank in which alligators live] (Santali); magar (H.); cf. tayan (Santali.lex.Bodding)

mun:gar = a mallet; sal man:garte bantha sagar. reak put.ile kutam jalada = with a wedge-mallet (sal stands here for the wedges joining the parts of a solid wheel we hammer the outside plank of a solid wheel firmly in; hende kuhu pon.d. ba_k sal mun:gar huabak = a black crow, a white paddy-bird, a wedge mallet, all at once (an expression used at the Sakrat; a young man lies down on his back, a number of men present put their little finger (right hand) under the man lying down and saying this, lift him up (Santali); mu_gra_ (H.)(Santali.lex.Bodding)

man:jhaut.i = headmanship, the position and work of a villae headman; man:jhi = headman of a village (especially a Santal village, but used by the Santals also of the chief of a Hindu or Mohammedan villae); appoint to be, become a village headman; man:jhi is also used by others (not by Santals) in the meaning of a 'Santal', especially in address; ato man:jhi t.hen laime = tell it to the village headman; man:jhia = a collection of headmen; man:jhia man:jhi = a collection of headmen and tenants come together for judging; man:jhian = A Santal woman; man:jhian = female (Desi); man:jhia = a male, man (Desi); man:jhi har.am = the old village headman (Santali.lex.)

kara ghhako = a species of fish (Santali.lex.)
ka~r.a~ hako = a species of fish (Santali.lex.)

kara = a large iron pan used to boil sugar cane juice in (Santali.lex.)
kar.a = a kind of anklet (Santali.lex.)
karha = an agricultural implement used to drag earth from one place to another (Santali.lex.)
ka~r.ec = one eyed, blind of one eye (Santali.lex.)
kar.gec = a small twig (Santali.lex.)
kar.go = to stand on the hind legs with the forelegs resting on something living, as a bear does when hugging (Santali.lex.)

karigar, karigol = artisan; na~ha~k do sanamko karigolena = all are artisans nowadays (Santali.lex.)

khot.rao = to scrape, to cut by a scraping action, to scrape out of a hollow, to gouge (Santali.lex.)
kot.ro = a species of fish (Santali.lex.)

pot.ea gar.ai, pot.ha hako, put.hi hako = a species of fish (Santali.lex.)

re~r.e~t hako = a species of fish (Santali.lex.)
re~t = a file; reta = to saw, as when cutting with knife, sword etc., to draw backwards and push forwards, as a fiddle bow (Santali.lex.)
ret.e pet.e = to dispute, altercate (Santali.lex.)

sit.ka boar. = a kind of fish (Santali.lex.)
sit.ka = a small iron rod for cleaning the hooka (Santali.lex.)

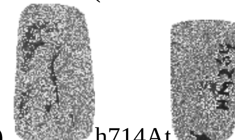
tirom hako = a species of fish (Santali.lex.)
tirom hasa = a kind of friable earth (Santali.lex.)

chala = panniers; d.an:grako chalawakoa = they put panniers on bullocks; chala badla = a pack bullock (Santali.lex.)
calka, calha, calha hako = a species of river fish (Santali.lex.)
calao = the fourth ploughing of a field (Santali.lex.)
calaua = a governor, a chief (Santali.lex.)

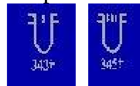
Rim (karn.aka, kan-) of a jar, kan, ‘copper’

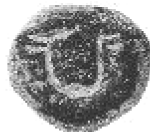
Rimless pot and Rim of pot



4305 Harappa. Warrior (**bhat.a**); rebus: **bhat.a** ‘kiln’. Three sides of a tablet (3305), each side showing the same sign and a warrior with bull's legs and a raised club. (After Asko Parpola, 1994, Fig. 6.3, p. 91). An identical imagery occurs on another tabet (h0714)  h714At h714Bt Standing person with horns and bovine features (hoofed legs and/or a tail) Icon of a person has bull's legs and a raised club.
Pict-90: Standing person with horns and bovine features holding a staff or mace on his shoulder.

The only sign shown on all three sides of this tablet and perhaps on both sides of tablet h714 is a ligatured rim of a jar with a narrow neck Sign 344.

 Sign 344 is a ligature of Sign 342 with inlaid two short strokes, which normally tag to a number of glyphs in the initial segments of inscriptions. Signd 343 and 345 are ligatured respectively with inlaid one short stroke and three short strokes.  [**kan.d.,** pot] **kan.d. kankha** = rim of a pot; rebus: **kan.d.i**, ‘furnace, altar’; karn.aka, ‘writer’ (Santali.Skt.lex.) [Ligatured with short linear stroke, **s’al**, ‘splinter’; rebus: workshop]



Daimabad-001 (Seal). This is a clear demonstration that the Sign 342 has to be read as a substantive and not a grammatical particle or syllable or alphabet.

kan.d.a = an earthenware pot (having a neck a little longer than that of a t.hili, but otherwise of about the same shape as this, only somewhat larger; ghar.a kan.d.a = a waterpot of brass (Santali.lex.Bodding) **kankha** = brim, rim of a vessel (Santali); ka~kh; kanna_ (H.)(Santali.lex.Bodding)

kan.d. = a furnace, altar (Santali.lex.) The rim of the short-necked jar thus indicates **kan.d. kanka** = gold (or goldsmith’s) furnace.Sign 342 cf. **ka~d.arn.e~** = jeweller’s hammer (M.); **kam.d.a_re_i** = scrapes, engraves (Pkt.)(CDIAL 2683).

kan.t.u = the rim of a vessel (Ka.lex.)

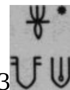
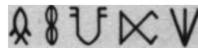
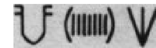
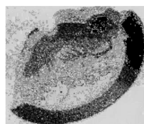
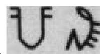
khan.d.a instrument, implement, weapon (sword)(Santali) kham.d.a = sword (Pkt.); kan.t.am (Ta.); xar.o, xanro, xarno, xanlo, xenli_ (Gypsy); khano (S.); khan.d.a_ (P.); kha~_r. (Ku.); kha_n.d.a_ heavy knife (A.); kha~_r.o sword (N.); kha~_ra_ large sacrificial knife (B.); khan.d.a_ sword (Or.); kha~_r.a_ (H.); kha~_d.u~ (G.); kha_d.a_ (M.)(CDIAL 3793). [The Santali substrate **kanka** is Sanskritized as karn.aka = projection on the side of a vessel (S.Br.); kano = rim, border (S.); kanna_ edge, rim, handle (H.); ka_na_ = brim of a cup (B.); ka_no (G.)(CDIAL 2831).

Copper work; brazier: **kan-** copper work, copper; kan-n-a_n- brazier (Ta.); bell-metal worker, one of the divisions of the Kamma_l.a caste (Ta.lex.) kanna_n id. (Ma.)(DEDR 1402). kan- workmanship (Tiv. Tiruva_y. 5,8,3); kan-mam (Tiv. Tiruva_y. 6,2,7)(Ta.)

Orthographic accent is on the rim of the jar

kan.d.a 'pot'; **kanka** = rim or neck of a jar; the glyph -- the most dominant sign among all inscribed objects -- is an orthographic emphasis on the neck of the pot. kan.d. = furnace; kanka = gold (Santali.lex.)

> Alternative: [kad.ava = a large, narrow-mouthed earthen or metal pot generally used for drawing water (Te.); **karava** = clay pot with narrow neck (Kod.); kharva = cup baked in fire (TS.) {one of Kubera's nine treasures, nava-nidhi} rebus: **karavai** = a tool of a blacksmith (Ta. katirve_rpil.l.ai. lex.); karava_yi, kharavayi_ = an instrument of braziers; an anvil or curved metallic bar on which vessels are hung to be hammered (M.Ka.te.)] Alternative glyph: Alligator **karavu**, kara_, kara_m (Ta.) [gra_ha (Skt.), garavu = to seize (Ka.)]; **gha~_t.** = protuberance of snout of alligator (A.) **gan.d.e** (Te.) gha~r.iya_l (A.B.); ghar.ya_lu = long-nosed porpoise (S.); gha~t. = protuberance on the snout of an alligator (A.); ghar.iya_l = crocodile (N.); ghar.ia_l.a (Or.); ghar.ya_l, gharia_r (H.); ghan.t.ika = alligator (Bhpr.) [Note: As an alternative, it will be argued that the glyph may connote a monitor lizard – and not an alligator.]

m02231167 [The sign in front of the one-horned bull may be Sign 162] The seal has a 'sprout' facing the one-horned bull and includes two signs, one of which is the rimmed jar.
Chandigarh01 9101Chandigarh02 9102
Chandigarh 001, 002 graffiti clearly demonstrate the accent of the pictograph is on the rim of the jar as much as on the narrow neck of the jar. A similar accent or emphasis is seen even on the copper rod (k121) which includes an incised epigraph at Kalibangan and on potery graffiti (k-104, k-105, k-100):
Kalibangan104A 8218Kalibangan105A 8216


Kalibangan100 k121A Inscription on rod.

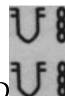
Kalibangan026 8071 [The inscribed potsherd k100 was used by BB Lal to demonstrate that the writing was from right to left as the stroke of the second sign from the right is over-laid by the incision made by the jar sign which is the third sign from the right. **In over one thousand inscribed objects, the rimmed jar sign is the terminal sign of the inscriptions, attesting to the fact that this commodity or object or equipment represented by the rimmed jar, khan.d.a kanka, was a commonly held possession.** kanka (Santali) = karn.aka, 'rim' (Skt.) Rebus: kan.d. (furnace) kanka (gold)].

There are many inscriptions with just two signs, one of them being the rimmed, narrow-necked jar as in b-019, b-004, b-008, k-017:

 Banawali 4  Banawali 8  Banawali19 
Kalibangan017

It is the core, the very life-activity of the civilization; the furnace of a smith. Hence, it is the most frequently occuring 'sign' on the inscribed objects.

 m0324A  m0324B 

m0324D  1252



m1406At m1406B Drummer. People tumbling over. 2827 beads furnace

kad.i_ a chain; a hook; a link (G.); **kad.um** a bracelet, a ring (G.)
ka_t.i = fireplace in the form of a long ditch (Ta.Skt.Vedic)

(**kandi** 'beads' **kan.d.** 'furnace'; Pict-102: Drummer and a group of people vaulting over a bovine? An adorant? The imagery of the chain also occurs together with a water-carrier pictograh on K-20: k020 [Beads + carrying yoke: *kandi* + *kut.i* rebus: *kand. kankha* + *kut.hi* 'copper furnace + (pit) furnace'] Alternatives: *kol.i* 'water-carrier'; *kole* 'furnace'. **kad.i** 'chain, link'; rebus substantive: **ka_t.i** 'trench-furnace'.



Alternatives glyph: **be_d.i** = chain, fetter (Ka.Te.); Rebus: **bed.a** = either side of a hearth (G.)

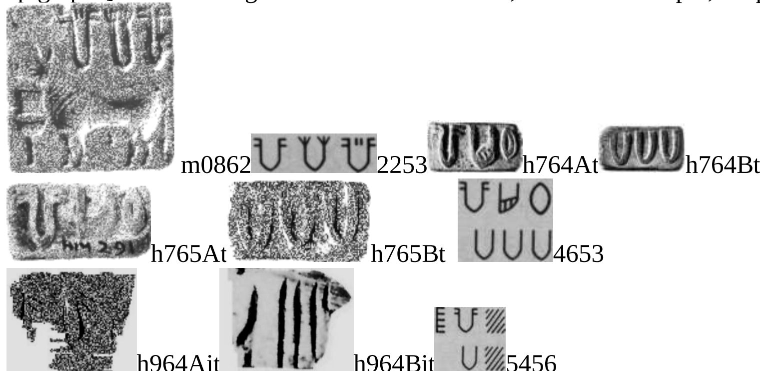
Graphemes: **kol.i_** = water carrier (M.) **xola_** = tail (Kur.); qoli = id. (Malt.)(DEDR 2135).
Rebus: **kol** = metal (Ta.)

kol.i_ a caste of water-carriers (M.); ko_lika weaver (Skt.); ko_t.ikar weaver (Ta.)(Ta.lex.) cf. kaulika a weaver (Skt.lex.) ko_likan-, ko_liyan- a caste of weavers (Ne_mina_. Er..ut. 16, Urai.); a kind of coarse cloth, as woven by ko_likar (Tol. Col. 114, Urai.); ko_lika-p-par-aiyan-, ko_liya-p-par-ai a division of the Pariah caste who weave coarse cloths; ko_lika-k-karuvi loom (Ta.)(Ta.lex.) kuli weaver (Or.); ko_lia weaver, spider (Pkt.); kori_ weaver (S.); koriar.o spider (S.); koli weaver (Ku.); koli_, kolhi_ Hindu weaver (H.); kol.i_ a partic. S'u_dra caste (G.); kol.i_ a sort of spider (M.); karol.iyo, kara_liyo spider (G.); in form the same as karol.iyo potter (CDIAL 3535).

kut.i = a woman water-carrier (Te.lex.)

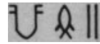
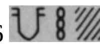
kut.hi 'furnace'

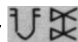
That the orthographic emphasis is on the 'rim' of the pot [which is the sign with the highest frequency on the epigraphs] which distinguishes it from a 'rimless', wide-mouthed pot, is apparent:



m0862 2253 h764At h764Bt
h765At h765Bt 4653
h964Ait h964Bit 5456

 m0693  Kalibangan105A  h883Ait  h883Bit

 h652  h669  4289  h656  4286

 Kalibangan017  8027

Substantive: **med.** 'iron' (Santali. Mundari) **me~r.he~t** iron; ispat m. = steel; **dul m.** = cast iron; kolhe m. iron manufactured by the Kolhes (Santali); mer.ed (Mun.d.ari); med. (Ho.)(Santali.lex.Bodding)

mer.go, mer.ho = adj. rimless (vessels); mi_r.u_ adj. Brimless, rimless (vessels having no outstanding lip); mi_r.u_ bat.ite han.d.i emok do ban: jutoka = it will not do to serve beer with a rimless brass cup (it will not run out properly); mi_r.u_ celan: = a brimless earthenware vessel; me_r. = border, edge (H.) (Santali.lex. Bodding) mi_d.u~ = having rims turned over (G.)(CDIAL 10120).

Thus the sign U may be a rebus for: **mi_r.u_ bat.i** = rimless basin; adom bat.i do kan:khagea ar adom do mi_r.u_gea = some bat.i-s have a rim and other are rimless (Santali.lex.)

bhat.hi = a copper (Santali.lex.)
bhat.i = a still, a boiler (Santali.lex.)

Glyph: rimless pot **mi_r.u_ bat.i** Substantive, rebus: **med. bat.hi** 'iron (ore) furnace'.

Beautifully shaped and proportioned: a complete painted vase (about 6 in. high) of the prehistoric period found during the excavations at Harappa. Plate II. Material recovered from Mohenjodaro in the first season of excavations by Sir John Marshall (G.L. Possehl, ed., 1979, Ancient Cities of the Indus, Delhi, Vikas Publishing House).



khan.d.a = instrument, implement, weapon; khan.d.a puruskedae, he stretched his arm grasping the sword as high as he could; **khan.d.a bhan.d.a** = implements of all kinds, arms of all sorts (Santali.lex.) **khan.d.a puruskedae**, he stretched his arm grasping the sword as high as he could (Santali.lex.)

Substantive: **kan-** = copper (Ta.) **kan-** = copper work, **kan-n-a_r tor..il** (Tamil.lex.) **kan:ka loha** = a type of metal (Pkt.lex.) **kanaka** = wealth (G.); gold (Skt.Ka.); kanakavr.s.a = golden bull; kanaka_dhyaks.a = a superintendent of the gold, a treasurer; kanaka_luke = a golden vase (Ka.lex.) kanaka = gold, wealth (G.lex.) kanakamu = gold (Te.lex.)

kan. = arrow, wooden handle of a hoe, pickaxe or other tool (Ta.)(DEDR 1166). **kan.keyt**, kan.ki.t sickle (Ko.); kan. koty dagger-shaped knife burned with corpse (To.)(DEDR 1204).

khan.n.a = that which is dug (Pkt.lex.) **khana** = a trench, a pit, a hollow in the ground (Santali.lex.) [**khan** = a mine (Santali) ?khani = mine (VarBr.S.); khan.i = mine (Pkt.); khani (A.); khan (H.); khan. = mine, quarry (M.)(CDIAL 3813); cf. khana = a trench, a pit, a hollow in the ground (Santali.lex.)].

Glyph: rim of pot: **kanna_** edge, handle, rim (H.); **ka_nu** end of a rope for supporting a burden (N.); **karn.a** = the handle or ear of a vessel (RV 8.72.12; S'Br. 9); the helm or rudder of a ship; **karn.aka** = a prominence on handle or projection on the side or sides of a vessel [*kan*- (Santali) < *karn.a* (RV)]; **karn.akita** = having handles, furnished with tendrils (Skt.lex.) karn.a = ear, handle of a vessel (Rv.); end, tip (RV 2.34.3); kan.n.a ear, angle, tip (Pali)(CDIAL 2830). kan.n.aka = having ears or corners (Pali); **kan.o** = rim, border (S.); **ka_n.a_** brim of a cup (B.)(CDIAL 2831). **kankha, kan:kha, khan:kha** = rim of a vessel; khan:kha habic perejme, fill it up to the brim; kan:khi = the rim of a vessel (Santali.lex.) **kan.d.a kan:kha, kan.d.a kankha** = the rim of a waterpot (Santali.lex.) **kankha, kan:kha** = brow of a hill (Santali.lex.)

> Alternative:
> **va_si** = lip (Ga.); va_y = mouth of pot (Pa.); vepot.i = lip (Kond.a);; bai_ aperture of vessel (Kur.) ba_ mouth, aperture (Br.); va_y = mouth as of cup (Ta.); ba_yi (Ka.Tu.); veyu = mouth (Kond.a) va_tu = mouth (S.)
>
> va_s'i_ (RV.) **va_cci** = adze (Ta.Ma.); scraper (Ma.); ba_ci (Ka.Tu.); po.d.c = adze (To.) va_y = edge of knife (Ga.Go.Ta.Ma.); ba_(Br.); va_ (Ma.); va_dara = edge of sword (Te.); va_ya = blade, sharpness (Te.); ba_yi (Ka.Tu.); va_yi = edge of any cutting instrument (Te.)

karn. to pierce, bore (Dha_tup. 35.71); karn.i = the act of splitting, breaking through; karn.ika = a kind of arrow (the top being shaped like a ear) (Skt.) karan.amu = an instrument, means (Te.lex.)

kerani = writer, clerk (Santali.lex.) **karan.ika, karan.i_ka, karn.ika** a writer, a scribe; a villager clerk or accountant; a royal scribe or accountant (cf. as.t.a_das'apradha_na); the head native official of a district collector's office; an arithmetician; karan.ika man.d.ali_ka a chief scribe (Ka.) **karan.aikamu, karan.i_kamu** = the office of a karn.am or clerk, clerkship, chiefly for keeping accounts; karan.amu = a writer, scribe, clerk, accountant; a village clerk or accountant; a writer caste (Te.lex.)

karani., **karn.i**, karan.ige, karn.e = a mason's trowel (Ka.); karan.ai (Ta.); karan.i_ karn.i_ (M.); **karn.i** a particular part of the plough (Ka.)(Ka.lex.) **karni_** mason's trowel (P.H.)(CDIAL 2791).

karn.amu = the rudder of a ship (Te.); **karn.a** id. (Ka.G.); karn.agra_hud.u, karn.adha_rud.u = a helmsman, a pilot (Te.lex.)

ka_n.a_ = one-eyed (Rv); ka_n.a = blind one eye, blind (Pali.Pkt.); ka_n.a_ one-eyed (B.Mth.)(CDIAL 3019).

karan.e, kan.n.e = a clot, a lump (Ka.lex.)

karn.ikika_ = a heifer; **khan.d.a** = a calf with horns half-grown (Skt.lex.)

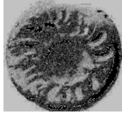
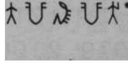
karan.a = act, deed (RV); doing (Pali); instrument (Pkt.); karn.e~ = action, deed (M.); karan.a = occupation, trade (Si.); karn.i_ (M.)(CDIAL 2790). Karn.i_ work, act (S.); karan.i_ya duty, businesss (Pali); karan.i action (Pkt.); karn.i_ work, act (Ku.); karni_ (P.); karan.i_ work, authority (Or.); karni_ act (H.); karn.i_ (G.); incantation (M.)(CDIAL 2791).

karn.a = the sun (Ka.lex.) karan.a = a ray (G.lex.) **kiran.a** ray of sun (Skt.)

> **ra~t** = rays of the sun, glare (Santali.lex.)

rat.o a cluster of rocks in the bed of a river (Santali)

ra~t = a car, a four-wheeled carriage; ra~t gad.i = a chariot (Santali.lex.)

 m0428Bt 1607 Pict- 132: Radiating solar symbol.**bela** =time, the sun (Santali.lex.) cf. vel.a_ time (Pkt.Pali.); beli (A.); bel.a daytime (Or.); vel., el. Time (M.); ve_ra time (K.); ve_le = sun, daytime (Gadba); ve_d.a sun (Kuwi); beru (Malto); bi_r.i_ sun, time (Kur.)(CDIAl 12115).

On this tablet, the rebus interpretation of the radiating solar symbol can be that it relates to arka (akka-) or copper metal. The inscription on the obverse can thus be interpreted as a list of tools made of copper (metal) or furnaces used by a coppersmith.

akka, aka (Tadbhava of arka) metal (Ka.); akka metal (Te.) **arka** = copper (Skt.) cf. arh, argha a collection of twenty pearls (having the weight of a Dharan.a) VarBr.S.; worth , value , price , Mn. Ya_jn~.; arghya = valuable (Skt.) akka-ca_lai metal works (Cilap. 16,126, Urai); mint; akkaca_laiyar goldsmiths, jewellers (Ta.lex.) 5952a.Workshop of a goldsmith: aka-sa_la, aga-sa_la, aka-sa_liga, aka-sa_le a gold or silversmith; aka-sa_like the business of a gold or silver smith; akka-sa_le, aka-sa_le the workshop of a goldsmith; a goldsmith; akka-sa_liti a woman of the goldsmith caste (Ka.); akka-c-ca_lai a shop where metals are worked (Ta.)(Ka.lex.)

arka connotes the sun and also saturn in Skt. **kona_rka** is a compound: kona, 'corner'; arka, 'sun'. arka also connotes fire in Skt. The equivalence of arka as sun and Saturn, is noticed in Greek manuscripts: "...as Boll discovered, this practice of "correcting" the name of Saturn, from Helios to Kronos, was quite common among later copyists. Based on his reading of the most original Greek manuscripts, Boll drew a startling conclusion: the sun god Helios and the planet-god Saturn were "one and the same god." Now if this only seems to accentuate the puzzle, there is more. Hindu astronomical lore deemed the planet Saturn as Arka, the star "of the sun." And certain wise men of India often asserted that the "true sun" Brahma, the central light of heaven, was none other than Saturn. This in turn, reminds us of a rarely-noted teaching of the alchemists, preservers of so many ancient mysteries. The planet Saturn, they recalled, was not just a planet; it was "the best sun"!" http://www.kronia.com/thoth/thoth10.txt a_r..va_n- the sun (Ta.)(DEDR 396). **aru** sun (Skt.); yor (Kho.)(CDIAL 612). ravi sun (Mn.Pali.Pkt.); rivi (Si.)(CDIAL 10646). ilaku (ilaki-) to shine, glisten, glitter (Ta.); el sun, light, splendour (Ta.); lustre, splendour, light (Ma.); ilakuka to shine, twinkle (Ma.); ilankuka to shine (Ma.)(DEDR 829). **arka** flash, ray, sun (RV.); a_k sun (Mth.); akka sun (Pali.Pkt.); aka lightning (Si.); vid-aki lightning flash (Si.Inscr.)(CDIAL 624). aks.an.a_ lightning (Skt.); akkhan.a_ id. (Pali); akan.a, akun.a id., thunder (Si.)(CDIAL 27). pakal sun, the morning sun, day, daytime (Ta.)(DEDR 3805). an:ki sun (Tirukka_l.at. Pu. 30,14); fire; agni (Kantapu. Pa_yira. 53); an:kicuma_li a deity representing the sun, one of the tuva_taca_tittar (Ta.lex.)axrna_ to warm oneself (by the fire, in the sun)(Kur.); awge to expose to the heat of the sun or fire; awgre to bask in the sun, warm oneself to a fire (Malt.)(DEDR 18).

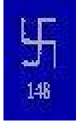
Svastika, endless-knot and other glyphs

Arethusa and svastika_

Svastika_ is a dominant glyph among the epigraphs of Sarasvati Civilization. Over 50 inscribed objects depict this glyph.

That the head of Arethusa is imprinted on a tin ingot and on a Greek coin in the middle of a svastika_ glyph is a pointer to the decoding of the true meaning of svastika_ glyph. The morpheme which occurs in Kannada may hold a key to this decoding: **satavu, satuvu, sattu** = pewter, zinc (Ka.) **dosta** = zinc (Santali) **jasada, yasada, yasadyaka, yasatva** = zinc (Jaina Pali) **ruhi-tutiya** (Urdu) **tuttha** (Arthas'a_stra) **totamu, tutenag** (Te.) **oriechalkos** (Gk.)[7]

Homonyms are: **sathiya_** (H.), sa_thiyo (G.); satthia, sotthia (Pkt.) = svastika_ sign



Glyph: ***sathiya_*** (H.), sa_thiyo (G.); satthia, sotthia (Pkt.) Svastika_ sign

Meeting of four roads *svastika* (Skt.)

Early cementation processes roasted zinc ore (oxide) was mixed with copper fragments and charcoal (reducing agent) and the mixture was heated in a sealed crucible upto 1000 degrees C. The zinc vapour dissolved to yield a quality of brass. Examples of brass have been found in Lothal and Atranjikhera (6.28 to 16.2 % zinc) dated to c. 3rd and 2nd millennia BCE respectively. Carbon 14 dates (uncalibrated) for the Zawar mines of Rajasthan (40 kms. south of Udaipur) are PRL 932, 430+100 BCE and BM 2381, 380+ 50 BCE. Mining of lead zinc ores are found in the old workings at Rajpura-Dariba (375 BCE) and Rampura-Agucha (370 BCE) . At Prakashe, a Chalcolithic site (2nd millennium BCE) in Deccan, two copper objects each containing 25.86 and 17.75 percent zinc has been found. A vase found at Bhir mound (3rd cen. BCE), Taxila contained 34.34% zinc. A part of chariot in submerged Dwarka assayed 10.68% zinc (unknown date); many copper coins and many bronze images of historical periods contain upto 25% zinc. Silver used in many punch-marked coins was obtained from Zawar mines which yielded copper, zinc, lead and silver.

On coins from Syracuse the head of Arethusa was often portrayed (ca. 500 BCE). This girls' head has often a net in her hair and is usually surrounded by fish.



Arethusa coin from Syracuse, 4th cent. BCE **Arethusa is a water divinity, as shown by the four fish circling around; she wears a diadem of beads.**



Arethusa on a Greek coin [c. 510-490 BCE] The coin shows the image of Arethusa in the middle of a **svastika_** glyph. Arethusa, a nymph known in several different parts of Greece, usually the Pelopponnese and Sicily. She was one of the Nereids. The river-god Alpheus fell madly in love with her, but she fled to Sicily. There she was changed into a fountain (the Fonte Aretusa, in Syracuse) by Artemis. Apheus made his way beneath the sea, and united his waters with those of Arethusa.





"The earliest tin ingots, apart from those shown in Egyptian tombs, are the ones recently found off the coast of Israel. Four (or more?) came from Haifa and one of these has a head of **Arethusa** impressed upon it. All four have Cypro-Minoan (?) letters." [RF Tylecote, 1981, *The early history of metallurgy in Europe*, London, Longman, p. 12].

[Tin ingots were traded through the Levant in the 2nd millennium BC; in the autumn of 1976 two ingots were found 'in the sea near the Phoenecian port of Dor, south of Haifa. Ingot 1 and Ingot 2; Museum of Ancient Art, Municipal Corporation of Haifa; local fishermen had raised about 7 tonnes of copper and tin ingots in Haifa. The date of the two ingots is uncertain. The symbols incised on the ingots also resemble Cypro-Minoan symbols used in Cyprus and Ugarit ca. 1500 to 1100 BCE. May be, they were weighed at Ugarit and stamped as they travelled through the long overland caravan route right upto the western end. It is notable that Cyprus had no tin. Sources: Anon., Ingots from wrecked ship may help to solve ancient mystery, *Inst. Archaeo-Metallurgical Studies Newsletter*, No. 1, 1980, 1-2; Maddin, R., T.S. Wheeler and J. Muhly, Tin in the ancient Near East: old questions and new finds, *Expedition*, 1977, 19, 35-47]



MS 249 Unidentified Minoan text on clay. Knossos, Crete, 16th cent. BCE, Linear A script?

Two glyphs incised on the ingots are comparable to the glyphs of Sarasvati Civilization epigraphs; they are: a ficus leaf (**loa** = ficus; **loha** = copper); a sprout with five petals (**tagara** = *taberna montana*; rebus: **tagara** = tin).

These ?Cypro-Minoan letters could also have been the pictographs shown on inscribed objects of Sarasvati Sindhu Valley Civilization.

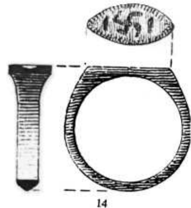
Svastika, a countable object

The svastika glyph connotes a countable object as seen from the number of glyphs shown on inscribed objects, h182B, h165 and har609:


h182A h182B

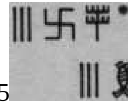
4306Tablet in bas-relief
h182a Pict-107: Drummer and a tiger. h182b Five svastika signs[8] alternating right- and left-handed. har609 terracotta tablet, bas-relief [The drummer is also shown on h182B tablet with a comparable epigraph and five svastika glyphs alternating right- and left-handed arms.]

Copper finger ring, Sirkap, Taxila, Stratum I, (Pl. 197, No. 24, Marshall); a total of nine symbols are inlaid on the ring including svastika_, vajra, cakra, triratna, s'ri_vatsa, Pl. XXII.

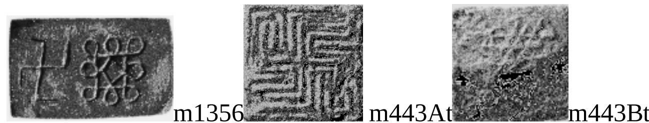


Vajra and cakra are weapons. It is likely that svastika_ is also a weapon or tool: s'akti (flag)staff, spear (MBh.); **satti** = knife, dagger (Pali); satti = a kind of weapon (Pkt.); sa_t = sword, spear (CDIAL 12251). It can be demonstrated that the 's'ri_vatsa' glyph is a derivative from a composite glyph of two fishes. If so, the glyph of two fishes may be read as: **ken.t.a kini** (lit. two fishes); rebus: **ke~r.e~** 'bell metal' + **gina** 'metal vessel'.



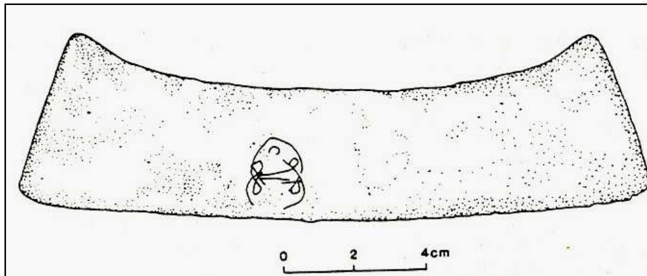
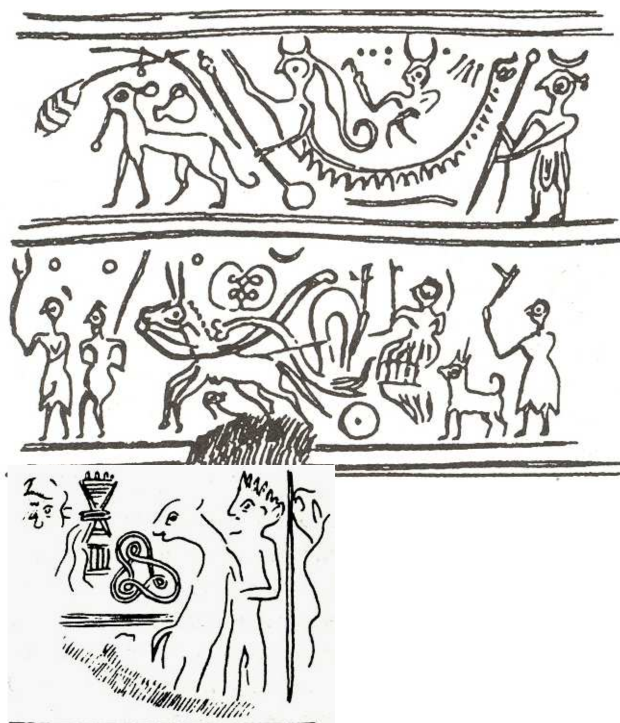

h165 
4500 On h182 tablet, there are 5 svastika signs; on h165 seal, there are 4 svastika signs; this leads to the surmise that the svastika represents a countable *object.*

The svastika glyph is associated with endless-knot glyph; the endless-knot glyph appears on a copper plate epigraph, indicating that both glyphs may connote the products made by metal-workers or equipment/processes involved in metal-work.

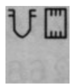

m1356 m443At m443Bt

Endless-knot motif appears on the following objects:

1. Rojdi ax-head or knife of copper;
2. Sumerian cylinder seal (circa 2500 BCE); and
3. Early Dynastic seal from Lagash.

	Rojdi. Ax-head or knife of copper, 17.4 cm. long (After Possehl and Raval 1989: 162, fig. 77
	Cylinder seal impression. Sumer (ca. 2500 BCE). After Amiet 1980a: pl. 108, no. 1435
Early Dynastic seal. Lagash. After Amiet 1980a: pl. 83, no. 1099	

Svastika_ connotes **satva, sattu** 'zinc, pewter'; endless-knot connotes **kacc** 'iron'.

 The endless-knot glyph and the signs may be read as:

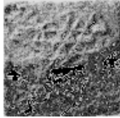
kacc iron, iron blade (Go.)(DEDR 1096). kars.i furrowing (Skt.); ka_rs.i ploughing (VS.); kars.u_ furrow, trench (S'Br.); ks.i_ plough iron (Pr.); kas.i mattock, hoe (Pas'.); kas.i spade, pickaxe (Shum.); khas.i_ small hoe (Dm.)(CDIAL 2909). kr.s.ika, kus'ika, kus'i, kus'ira a ploughshare (Skt.Ka.)(Ka.lex.) kes.a plough (Pas'.)(CDIAL 3444). kis' plough (Kho.)(CDIAL 3455). ks.e plough iron (Pr.)(CDIAL 2809). Mattock, hoe: kas.i mattock, hoe (Pas'.); Spade, pickaxe: kas.i spade, pickaxe (Shum.); kars.i furrowing (Skt.); kars.u~ furrow, trench (S'Br.)(CDIAL 2909)

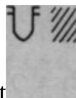


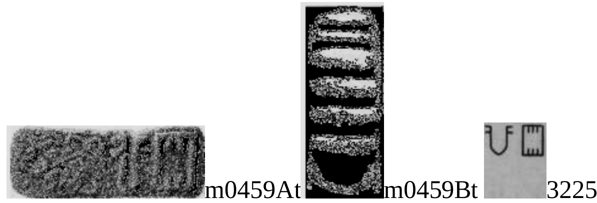
V194 kasi_ trench, watercourse (S.); kassi_ small distribution channel from a canal (L.); ka~_s artificial canal for irrigation (G.)(CDIAL 2909).

kaccu = a rafter (Te.)

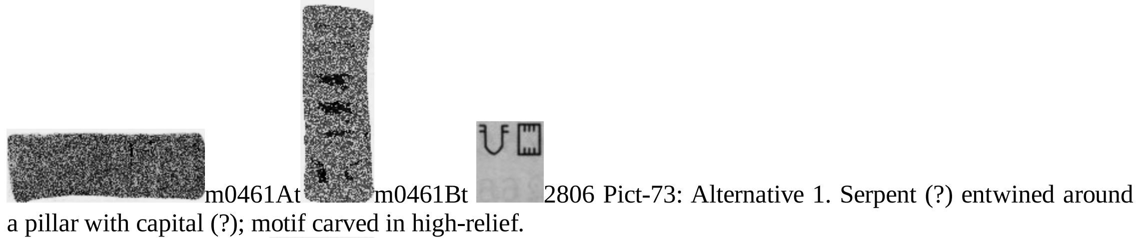
kacce = the organ of generation (yoni) of cows and buffaloes (Ka.M.Te.)

m443Bt **keccu** the knot which is formed by twisting; to join the end of two threads by twisting them with the fingers (Ka.); kerci a knot (Tu.)(DEDR 1965). kars.ati draws, pulls (RV.); kassate_ ploughs (Pali); karisai, ka_sai pulls (Pkt.); ks'al to drag, pull, lead (Gy.); kas. to pull (Wg.); kasan.u to tighten (S.); kassan., kassun. (L.); kas'n.u_ (WPah.); kassn.a_ (P.); kasab (Mth.); kasai harnesses, binds (OMarw.); kasvu~ to tighten (G.); ka_sanem. to tie fast (OM.)(CDIAL 2908). gajipuni to fasten, strengthen (Tu.); kaccuni to be joined fast (Tu.); kaccu to join (Ka.); kacip to fasten bullock to yoke (Pa.); kah to tie, fasten up; ka_ca_na_ to be tied tight (e.g., clothes)(Go.); gac to tie, bind (Pe.); geh-, gehpa- to bind (Mand..); gaspa to tie a knot, hang, suspend; n. hanging, suspension (Kui); gah- to tie (Kui); to bind (Kuwi); gahpo fastening, tying (Kuwi); xa_jna_ to tether, bind by the feet (Kur.)(DEDR 1099). kasiba to draw tight (A.); kac a tying, bond (B.); kacakvu~ to bind tightly (G.); kacakn.e~ to pull smartly, jerk (M.); kacka_vin.e~ to bind tightly (M.); kacate_ fastens (Dha_tup.)(CDIAL 2610). kas'a_ whip (RV.); rein (S'is'.); kasa_ whip (Pali); whip, thong (Pkt.); cord, tie of a garment (M.); ka_h strip of leather for sewing leather articles (K.); ka~hi~_ tie, tape, riband (S.); kasa rope (Or.); kasa string (OMarw.); kas tape of a bodice (G.); kasaya whip (Si.); kasiba_ to whip (Or.); kasai binds, harnesses (OMarw.); kasn.e~ to bind tightly with a cord (M.)(CDIAL 2965). <u>Image: to join</u>: kaccir-i to join things, to unite; kaccisu to cause to join, to unite; kaccu to join; kaccat.a, kaccut.a, kacad.i (Tadbhava of kaks.a_pat.a) a cloth passed between the legs to cover the privities (Ka.); kaccad.a a tuck, truss, etc. (Te.) (Ka.lex.) <u>Binding</u>: kaccan:kam agreement, binding (Ta.lex.) khacayati fastens (Skt.); *khacyate_ be set, be studded (Skt.); khacita inlaid (MBh.); khacna_ to be fastened, be set, be studded (H.); khacn.e~ to set(jewels, etc.)(M.); khac crowd, crush (H.); khac tightly (G.)(CDIAL 3766). keccu, kettu to enclose, set (as precious stones)(Ka.); kettuni to set (as jewels)(Tu.); cer-r-u to set (as a jewel)(Ta.); ceyal setting work in jewelry (Ta.)(DEDR 1985). kacate_ fastens (Dha_tup.); kaca band, hem; kace_la string holding manuscript leaves together (Skt.); kasiba to draw tight (A.); kac a tying, bond (B.); kad.asn.i_ binding rope (M.); kacakvu~ to bind tightly (G.); kacakne~ to pull smartly, jerk (M.); kacka_vin.e~ to bind tightly (M.); kaciba_ to masturbate (Or.)(CDIAL 2610). m0457Atm0457Btm0457Et [Frequency 13]

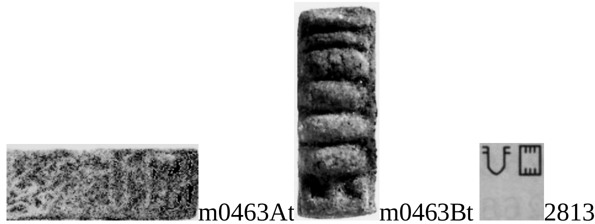
m0458Atm0458Bt3227


m0459At m0459Bt 3225


m0460At m0460Bt 3228


m0461At m0461Bt 2806 Pict-73: Alternative 1. Serpent (?) entwined around a pillar with capital (?); motif carved in high-relief.


m0462At m0462Bt 3215


m0463At m0463Bt 2813

Alternatives:
ko_lam = form (Ta.Ma.) Rebus: **kol** 'metal'

kan.d.a kanka 'rim of pot'; rebus: **kan.d.** 'altar, furnace' + **kan-** 'copper'

pa~er.e~ = overflow channel of a tank (Santali).

Rebus: articles of joint family (**pa~er.e~**) (Santali).

Alternatively, the endless-knot motif which follows the pair of signs (following Text 2813, for example) may be read as:

me~e.he~t = iron (Santali)

The entwined stones around a pillar or an entwined snake glyph:

mer.hao = v.a.m. entwine itself; wind round, wrap round roll up; mar.hna_ cover, encase (H) (Santali.lex.Bodding) [Note: the endless-knot motif may be a rebus representation of this semant. 'entwine itself']. **med.ha_** = curl, snarl, twist or tangle in cord or thread (M.); **meli, melika** = a turn, a twist, a loop, entanglement; **meliyu**, melivad.u, meligonu = to get twisted or entwined (Te.lex.) **merhao** = twist (Mun.d.ari)

Rebus: **melukka** 'copper'

Alternative 1: (sharp weapon; sharpness connoted by the 'knot' glyph): Substantive: **patam** = sharpness (as of the edge of a knife)(Ta.); padm (obl. Padt-) temper of iron (Ko.); pada = keenness of edge or sharpness (Ka.); **hada** = sharpeness (as of a knife), forming (as metals) to proper degree of hardness (Tu.); **padna_** sharpness (Go.); padanu, padunu = sharpness, temper (Te.); **padnu** = sharpening (of knife by heating and hammering)(Kond.a); pato = sharp (as a blade); **patter** = to sharpen (Malt.)(DEDR 3907).

badha = bound; **bandha** = tied up, hindered; bandh = an iron band round the nave of a cart wheel to prevent it from splitting (Santali)

paddu = item, entry in an account (Te.); **poddu –** thing, item (Pa.)(DEDR 3919).

pantam = torch, lamp (Ta.); torch (Ma.); pantye small lamp (Tu.)(DEDR 3919). [Note the procession carrying the standard device, the one-horned bull and perhaps a torch in front.]

> **badhor, badhor.ia** = crooked, cross grained, knotty (Santali.lex.)
> *badhoria* 'expert in working in wood'(Santali)

Alternative 2: melh 'copper'; rebus: mer.hao 'entwined'; **mer.hao** = to entwine itself, wind round, wrap around, roll up (Santali.lex.) [Note the endless knot motif].

Glyph: *malukku* slip-knot (Ta.); *malaku* a turn, twist, fold (Ka.); *mala-gonu* to be twisted; *maluku* a turn, slip-knot (Te.)(DEDR 4734).

Melukka = copper (Pali)

Alternative 3: d.on.t.ho 'knot'; rebus: d.hon.d. 'stone-cutter'

Glyph: *d.on.t.ho, dhon.t.ho, dhon.t.o* a knot (Santali)

d.hon.d.-phod.o [M. dhon.d.a_, a stone] a stone-cutter, a stone-mason; *d.hon:d.-jhod..o* [M. *dhon.d.a_* a stone + *jhod.avum*] a stone-cutter; a stone-mason; *d.hon.d.o* a stone; a blockhead; a stupid person (G.)

Considering that on the cylinder seal impression from Sumer the motif of 'endless-knot' is shown together with a chariot accompanied by persons carrying weapons and also a dog, the entire glyptic could be related to a hunting expedition. This is consistent with the other part of the cylinder seal on the top register depicting a boat journey, also accompanied by a person carrying a spear. Thus, the 'endless-knot' as a glyph should be related to semant. 'attack' or 'killing'.

The association of the 'endless-knot' glyph with the 'svastika' glyph points to both the glyphs as related to the description of a weapon.

If the 'endless-knot' means rebus 'killing or attacking'; the 'svastika' rebus may mean 'knife or dagger', i.e., a weapon sharp enough or pointed enough to kill or be used in a hunting expedition.

The glyphs and rebus representations may thus be deduced as:

> **krandas** 'attack!' 'kil!'; rebus: **grantha** 'knot' glyph.
> **satthiya** 'knife, dagger'; rebus: **svastika** glyph.

Such a decoding is consistent with the depiction of the 'knot' glyph on a copper ax-head or knife from Rojdi. It is a weapon for **krandas**! Knife to kill!

granthi = knot (RV. 9.97.18); ga_n.t.ha (H.); granthin = twined together (RV 10.95.6); granth = to tie together (Vedic lex.)

L051a Seal. **granthi** = honey-comb (Pa_n. 4.3.116, Va_rtt.); cf. Nir. 1.20; granthi = knot of a cord, knot tied in the end of a garment for keeping money (Pan~cat.); a knot tied closely and therefore difficult to be undone, difficulty, doubt (Ch.Up.); granthila = knotted, knotty; grath = to be crooked (Dha_tup. 2.35); granthi = crookedness (Skt.lex.)

gan.t.lu (pl.), gan.t.i = hole bored in ears for ear-rings (Te.lex.)

brahma granthi = a sort of knot holding together the ends of dwija's sacred thread; gan.t.u = a knot (Te.lex.) grathana_ = tying, binding, ensnaring; grathita = strung, tied (RV 9.97.18; S'Br. 11) (Skt.lex.)

kranta = the meeting place of cross-roads; a lane; a hole (Te.lex.)

A remarkable demonstration of
(1) the continuity of the motif of endless knot in the Indian civilization from ca. 3rd millennium BC upto the 17th cent. AD.and even today, in South India; and
(2) the parallel use of the motif of the endless knot in Mesopotamian civilization ca. 3rd millennium BC.

grantha = a book or composition in prose or verse; a code; grantha lipi = one of the various characters used in writ (Ka.lex.)

krandas = battle-cry, army (RV 10.121.6) yam krandasi_ avasa_ tastab ha_ne 'dya_va_pr.thivyau' (Vedic.lex.) krath = to hurt, kill (Dha_tup. 19,39; caus. kra_thayati, to hurt, injure, destroy (with gen. of the person hurt, Pa_n. ii, 3.56, Dha_tup. 34.19); krathana = cutting through (as with an ax); slaughter, killing (Skt.lex.) krathana = killing, slaughter (Ka.lex.) gan.t.u = to cut, to wound; a wound, hurt; gan.t.i = a wound (Te.lex.)

kr.ta = injured, killed; kr.ti = hurt, hurting, injuring; a kind of weapon, sort of knife or dagger (RV 1.163.3) (Skt.lex.)

krandukayyamu = tumultuous mob fight (Te.lex.)

krandadi.s.t.i = having roaring speed or moving with a great noise, said of Va_yu (RV 10.100.2); kranda = a cry, neighing (AV 11.2.22); a cry, calling out (AV 11.2.2 and 4.2) krandanu = roaring (RV 7.42.1); krandya = neighing (TBr. 2.7.7.1, parjanya krandya); krandana = crier; crying out; mutual daring or defiance, challenging (Skt.lex.). khar. = a call to cattle (Santali.lex.) khat. khat. = with a swish, thud, as of a horse's hoofs (Santali.lex.) kharajru = quick in motion (RV 10.106.7)(Vedic.lex.) kranditamu, krandanamu = cry, lamentation; krandillu = to sound, to resound (Te.lex.)

kratha = name of a race always named with the Kais'ikas and belonging to the ya_dava people; name of an Asura (MB h. 2.585; Skt.lex.)

kranta = the betrothal presents taken to the bride from the bridegroom's house (Te.lex.) **grantha** = giving, da_na; bha_gi, vibha_ga (Ka.lex.)

grantha = wealth, property (Ka.lex.)

Inscribed objects containing the 'endless knot' [9]

Glyph: The endless knot = **kra_nta, ga_n.t.ha** (Hindi) and hence is shown together with the chariot. [cf, Lagash. Early Dynastic Seal with a variant of the endless knot. After Amiet 1980a: pl. 83, no. 1099.]

Substantive: **kra_nta** = invading, attacking (Skt.lex.) In the Tantra tradition, Bha_ratavars.a is divided into three parts called kra_nta-s: vis.n.u-kra_nta, ratha-kra_nta, as'va-kra_nta each part having 64 tantra-s attached.

Land east of the Vindhya ranges, extending upto Ja_va is Vis.n.u-kra_nta; the region north of Vindhya including maha_ci_na is as'va-kra_nta and the rest of the nation is as'va-kra_nta.

krandas = n. battle-cry; du. two contending armies shouting defiance [heaven and earth: Sa_yan.a]

yam krandasi_ sr.latayati_ vihvyete pare vara ubhaya_ amitra_h
sama_nam cid ratham a_tasthivalatasa_ na_na_ havete sa jana_sa indrah
RV 2.012.08 Whom (two hosts), calling and mutually encountering, call upon; whom both adversaries, high and low, (appeal to); whom two (charioteers), standing in the same car, severally invoke; he, men, is Indra. [Whom (two hosts): yam krandasi_ sanyati_ vihvayete = whom, crying aloud, encountering (two), invoke; the substantive is supplied: rodasi_, heaven and earth; or, dve sene, two armies; whom (two charioteers): here also a substantive is supplied: rathinau, two charioteers; or Agni and Indra].

s'u_ro va_ s'u_ram vanate s'ari_res tanu_ruca_ tarus.i yat kr.n.vaite
toke va_ gos.u tanaye yad apsu vi krandasi_ urvara_su bravaite

RV 6.025.04 The hero, (favoured by you), assuredly slays the (hostile) hero by his bodily prowess, when, both excelling in personal strength, they strive together in conflict, or when, clamorous, they dispute for (the sake of) sons, of grandson, of cattle, of water, of land.

yam krandasi_ avasa_ tastabha_ne abhy aiks.eta_m manasa_ rejama_ne
yatra_dhi su_ra udito vibha_ti kasmai deva_ya havis.a_ vidhema

RV 10.121.06 Whom heaven and earth established by his protection, and shining brightly, regarded with their mind, in whom the risen sun shines forth -- let us offer worship with an oblation to the divine Ka.

If *gand.en* to prick (Kol.); *ka~_d.u* to enter, penetrate, pierce, pass through (as arrows)(Te.)(DEDR 1178) *ka_n.d.a* arrow (G.) *kan.i_* arrow (G.); *kan.ai* arrow (Ta.); kan.ayam spear, club (Ma.); *kan.aya* a kind of spear or lance (Pali.Skt.)(DEDR 1166) is rebus for *ga~t.* 'knot', the *svastika* glyph may be cognate with *sutki_* 'an instrument of stone-splitters, hammer'. Thus, a warrior riding a chariot may carry both weapons: hammer and arrow (or spear or club).

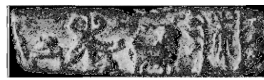
The importance of the glyph denoting **svastika** may be seen from the composition in m0488 tablet in bas relief. It occupies the center of the field and is flanked by an elephant and a tiger looking back:

m0488Atm0488Btm0488Ct

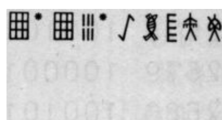
2802 Prism: Tablet in bas-relief. Side b: Text +One-horned bull + standard. Side a: From R.: a composite







animal; a person seated on a tree with a tiger below looking up at the



person; a svastika within a square border; an elephant (Composite animal has the body of a ram, horns of a zebu, trunk of an elephant, hindlegs of a tiger and an upraised serpent-like tail). Side c: From R.: a horned person standing between two branches of a pipal tree; a ram; a horned person kneeling in adoration; a low pedestal with some offerings.

On side B of a tablet (h177), kneeling person is shown in prayer in front of a standing person under an arch decorated with a toran.a of ficus leaves.

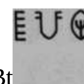
Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)
Substantive: *sal* workshop (Santali)



m0482At



m0482Bt



1620 Pict-65: Gharial (or lizard), sometimes with a fish held in its jaw and/or surrounded by a school of fish.

On tablet m0482, the svastika follows the glyph of a tree branch '*aduru*'; hence the two signs may be read as: *aduru* 'metal' + *satthiya* 'knife, dagger' (*s'akti* –Skt.)

swadhiti (RV.AV.) **sathiya_** (H.) knife, dagger; sathia_, satthaka = knife (Pkt.Ka.)

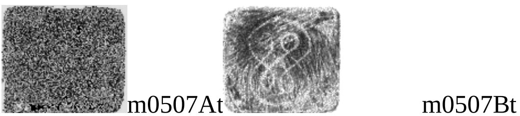


h629 h104

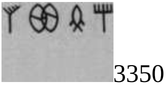


m1225A

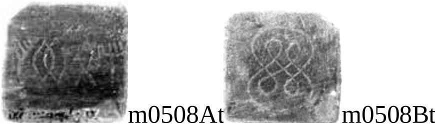
m1225B. 1311 Cube seal with perforation through the breadth of the seal Pict-118: svastika_ , generally within a square or rectangular border.



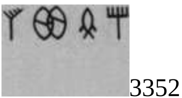
m0507At m0507Bt



3350



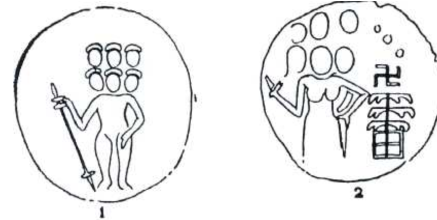
m0508At m0508Bt



3352

Rao finds the svastika motif more common in Mesopotamia than in the Sarasvati civilization. Paul Amiet suggests an Iranian origin for the svastika motif. [Paul Amiet, 1961, *La glyptique Mesopotamienne Archaique*, Paris]

Yaudheya coin. Godess Sas.t.hi on reverse. S.an.mukha with lance on obverse. Lucknow State Museum. A remarkable legacy of the Sarasvati Sindhu inscriptions is echoed in the

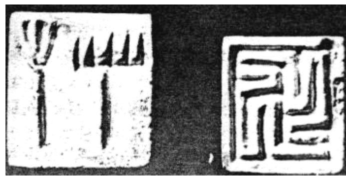


glyphs of a svastika_ above tree on railing (*Journal of the Numismatics Society of India*, Vol. V, Pt.I, June 1943) This is obviously a rebus pun on the word: satthi, s'akti, spear, sas.t.i = six, satthika = auspicious symbol. The tree may be also be a rebus representation.

Godess S'as.t.hi. Mathura, 2nd cent. Mottled red sandstone 67.8 X 34.5 cm (MIK I 5924). "The godess lifts her right hand in a gesture of salutation that is typical of the Kushana period. The hand is slightly turned inwards, towards the body (vya_vr.tta-mudra). Her left arm, which bends outward, rests on her hip. She wears a broad girdle, a thin band around the waist, and aa sash over the shoulders and arms. her jewellery comprises earrings, a braod necklace, and bangles... on the large nimbus, which occupies the entire upper half of the stele, five more female figures are seen, which seem to emanate from the main figure. Each of the secondary figures have both arms lifted, perhaps in an expression of joy. They hold certain objects in their hands which are difficult to identify... the large size of the present



stele suggests that it was meant for a temple..." (Heino Kottkamp, Exhibit 26 in: Saryu Doshi, ed., 1998, *Treasures of Indian Art: Germany's tribute to India's cultural heritage*, Delhi, National Museum, p.33).



Two seals found at Altyn-depe (Excavation 9 and 7) found in the shrine and in the 'elite quarter'. V.M. Masson, Seals of a Proto-Indian Type from Altyn-depe, pp. 149-162; V.M. Masson, Urban Centers of Early Class Society, pp. 135-148; I.N. Khlopin, The Early bronze age cemetery in Parkhai II: The first two seasons of excavations, 1977-78, pp. 3-34 in: Philip L. Kohl (ed.), 1981, *The Bronze Age Civilization in Central Asia*, Armonk, NY, ME Sharpe, Inc. "The discovery in Altyn-Depe of a proto-Indian seal with two signs deserves special mention. V.M. Masson pointed out, that what the seal depicted was a pictogram and not just a representation of animals. In his opinion this means that some of the ancient residents of Altyn-Depe were able to read this text."(G. Bongard-Levin, 1989, Archaeological Finds in Central Asia throw light on Ancient India, Jagdish Vibhakar and Usha Gard (Eds.), *Glimpses of Ancient India through Soviet Eyes*, Delhi, Sundeep Prakashan).



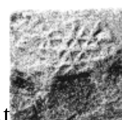
Text 4500 (Incised miniature tablet; not illustrated).

Early Dynastic seal, depicting an endless knot motif facing the turned face (**krem-**) of a battling tiger (**kol-kamar**, smelter-smith); Lagash. [After Amiet, 1980, pl. 83: no. 1099]



Terracotta stamp seal, Taxila, c. 1st cent. CE. [After Parpola, 1994, fig. 4.6]


m443At


m443Bt


m1356

The seals m443 and m1356 show the endless knot motif together with the svastika_ glyph. The semantics connoted: **me.rha**, 'twisted; leader, merchant's clerk, **med.h**'; svastika_, 'caravan'; the Sumer cylinder seal impression showing a chariot-rider and a caravan, by adding the endless knot motif as a semantic determinant is a depiction of a merchants' caravan, **med.h svastika_.**

Instruments: cutti, kan.aya (hammer and spear)

Alternative readings of glyphs: 'endless knot' and 'svastika':

*sutki_* an instrument of stone-splitters (M.); *cutti, cuttiyal* small hammer (Ta.); *cutti, cuttika, tutti* hammer (Ma.); *suttige* id. (Ka.); *sutti, suttige, suttiye, suttee, suttye* id. (Tu.); suttee id. (Te.Go.); *suthi* id. (Kuwi); (DEDR 2668).



Glyph: *ga~t.* knot (Santali) *grantha* a knot; fr. *granth* to tie (Skt.) *gat.t.ho* knot (G.)

sva_tta (Av. *hva_sta*) sweetened, seasoned, well-cooked (Vedic.lex.) *s'uti_* ashes (Ash.); *s'ut* earth (Kt.)(CDIAL 3709). *suti* extraction of soma juice (Skt. lex.) *suti* (Tadbhava of *s'ruti*) the Ve_da (Ka.lex.) *sutti-ttal* to calcine medicine, refine metal (Tailava. Taila. 109); *cutti-ceytal* to refine, sublimate (Ta.); *sutam* < *s'ruta* sacred books (Tirunu_r-. 52); *curuti* < *s'ruti* Ve_da, as learnt orally and not from written text (Tiva_.); *cuti* id. (Ta.); *suti* (Te.Ka.Tu.)(Ta.lex.) *sutva* an offerer of soma juice; a student who has performed his ablutions (Ka.lex.) *suta_vant* = *sr.taso_ma* having the soma pressed (RV. iii.25.4); *suta_suta* what is extracted and what is not extracted; *suti* pressing; impelling (Vedic.lex.) *suta-kri* purchased with the Soma (RV. vi.31.4); suta-pa_ drinking the Soma-juice (RV. i.155.2); *suti* pressing; impelling; *sutya_* pressing of the Soma; *sutvan* id. (RV. x.99.1)(Vedic.lex.) *suta* poured out, extracted, expressed; *su_ta* impelled, sent, despatched; *su_tye* expressing or drinking the soma juice (at a sacrifice) (Ka.lex.) *chuai* grinds, presses (Pkt.)(CDIAL 3710).

Svastika_: A marker of Bronze-age civilization in Bha_rata; its significance in the context of

bronze-working in Bha_rata with parallel imageries of Cyprus

An interesting point is that some scholars agree that the model for the symbol of svastika_ must have been an object, known and useful throughout the ancient world. [Thomas Wilson, 1896, *The Svastika_. The earliest known symbol, and its migrations; with observations on the migration of certain industries in prehistoric times,* Washington DC, The Smithsonian Institution, US National Museum, Washington DC].



Svastika_ and Endless knot: sword and instrument of stone-splitters: satti, suta

su_tika = a woman in childbed; su_ti = birth, delivery, parturition; offspring, progeny (Te.lex.) cu_ttu = anus, buttocks, pudendum muliebre; cu_r-u anus (Ta.); testicles, penis (Ma.); suti = female urinal passage (Kui); cu_ta, cu_ti, cyuti = anus (Skt.)(CDIAL 4860)(DEDR 2724). kundrka_ (Kur.); kunde = to be born, be created (Malt.) [Note a glyph: a woman giving birth].

sutti, suttige, suttiye, sutte, suttye hammer (Tu); sutte (Te.Go.); suthi (Kuwi); **sutki_** = an instrument of stone-splitters (M.)(DEDR 2668)

Cylinder seal impression, depicting an endless knot motif above the horses drawing the chariot; Sumer, c. 2500 BCE. [After Amiet, 1980: pl. 108, no. 1435]; the charioteer is a **su_ta**.

cur-r-u = to turn around, spin, take a circuitous course, be coiled, lie encircling, encircle, entwine, surround, coil up, whirl (Ta.); cur-ayuka = to turn around, wriggle (Ma.); suttu = to surround, wrap round, wind, circumambulate; coiled metal ring, coil, a turn (Ka.); sut.t.are = a whirlwind (Ka.); cutt- to wind around (Kod.); suttuni = to wind, roll, wrap, swurround (Tu.); cut.t.a = loop, coil (Te.); cutt- to wind round (Pa.); sut- to twine (rope)(Go.)(DEDR 2715).

sutam = thread, yarn, any flimsy substance produce by insects, such as spiders, silkworms (Santali.lex.) su_tra = thread (Skt.) su_tradha_rud.u = a carpenter; a stage-manager (Te.lex.)

su_tamu = mercury (Te.lex.)

su_tye = expressing or drinking the soma juice (Ka.lex.) [Note the glyph of two persons drinking in a Mesopotamian seal].

su_tud.u = a charioteer; a carpenter; a bard, an encomiast, a reciter or teller of epics (Te.lex.) **su_ta** = a charioteer, driver, groom, equerry, master of the horse (esp. an attendant on a king who in earlier literature is often mentioned together with the gra_ma-n.i_; in the epics also a royal herald or bard, whose business was to proclaim the heroic actions of the king and his ancestors, while he drove his chariot to battle (AV); a carpenter or wheelwright; su_takarman = the office or service of a charioteer; su_tagra_man.i_ (Ka_s' on Pa_n. 7.1.56) an equerry and the chief of a village (S;Br.); su_tatva = the business or condition of a charioteer; su_ta f. the daughter of a charioteer (Pa_n. 6.3.70, Va_rtt. 9, Pat.)(Skt.lex.)

mer.ha = twisted, crumpled, as a horn (Santali.lex.) **meli, melika** = a turn, a twist, a loop, entanglement; **meliyu**, melivad.u, meligonu = to get twisted or entwined (Te.lex.) [Note the endless knot motif].

me_t.i, me_t.ari = chief, head, leader, lord, the greatest man (Te.lex.) mehto [Hem. Des. **med.hi** = Skt. van.ik-saha_ya: **a merchant's clerk**, fr. Skt. mahita praised, great fr. mah to praise, to make great] a schoolmaster; an accountant; a clerk; a writer (G.lex.) milakat [Ar. Milkate] property; estate; effects; chattels; goods (G.lex.)

mleccha = a man speaking any language but Sam.skr.ta and not conforming to brahmanical institutions; a kira_ta, s'abara or pulinda etc.; mleccharene kod.ava kod.agaru…kod.ava kon:garu (Ka.lex.) **med.i** = sound, roar (TS 5.7.8.1); methis.t.ha = worthy of hearing (TBr. 2.7.6)(Vedic.lex.) **mleccha** = a man speaking any language but Sam.skr.ta and not conforming to brahmanical institutions; a kira_ta, s'abara or pulinda etc.; mleccharene kod.ava kod.agaru…kod.ava kon:garu (Ka.lex.) mlaskati = to

snap with tongue (Slovan)(Vedic.lex.) mle_ch = speak indistinctly (Skt.); mle_cchati speaks indistinctly (S'Br.) brichun, pp. bryuchu = to weep and lament, cry as a child for something wanted or as motherless child (K.)(CDIAL 10384). milakkha, milakkhu non-aryan (Pali); malak savage; malaki-du_ a Vadda_ woman (Si.); mila_ca wild man of the woods, non-aryan (Pali); maladu wild, savage (Si.); mi_cuth, mi_catas habit or life of an outcaste (K.)(CDIAL 10390). mle_ccha = non-aryan (S'Br.); maleccha, miliccha, meccha, miccha = barbarian (Pkt.); mi~_ch, mi~_cas non-hindu (K.); milech, malech Moslem, unclean outcaste, wretch (P.); mele_ch dirty (WPah.); mech a Tibeto-Burman tribe (B.); milidu, milindu wild, savage (Si.)(CDIAL 10389).

mer = a kind of large copper or brass pot (G.lex.) cf. melukka = copper (Pali); mleccha = copper (Skt.) mlecchamukha = copper; what has the copper-coloured complexion of the Greek or Mahomedans]. mer-iya = a rock; mer-ayu = to shine, glitter (Te.lex.)

Finds of svastika on seals and finds of weapons

Svastika_ glyph occurs on over 50 inscribed objects of the civilization.

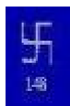
"A copper blade (Marshall 1931: pl. 136, f.3) found in one of the upper levels, though termed a spear-blade, may conceivably have been a knife (Plate IX, no.1). An exactly similar blade, but with a slightly longer tang, was found in the A mound at Kish (Mackay 1929a: pl. 39, gp. 3, f.4)... attention should be called to a steatite seal from Kish, now in Baghdad Museum, which bears the svastika symbol. This seal, both in shape and design upon it, exactly resembles the little square seals of steatite and glazed paste that are so frequently found at Mohenjodaro (Marshall 1931: pl. 144, f. 507-15).

"I do not think that I err in regarding the Kish example, which was found by Watelin, as either of Indian workmanship or made locally for an Indian resident in Sumer... The curious perforated vessels shown (Marshall 1931: pl. 84, f. 3-18) are very closely allied to perforated vessels found at Kish (Mackay 1929a: pl. 54, f. 36), especially in the fact that besides the numerous holes in the sides there is also a large hole in the base, which suggests that by this means they were supported on a rod or something similar... I have suggested, from evidence obtained by Sir Aurel Stein in southern Baluchistan, that these perforated vessels were used as heaters...(E.J.H.Mackay, Further links between ancient Sind, Sumer and elsewhere, *Antiquity*, Vol. 5, 1931, pp. 459-473).

Partner, merchant, belonging to a caravan

satthika = belonging to a caravan (Pali); satthia (Pkt.); sothi = comrade (K.); sa_thi = comrade (S.); sa_thi_ = partner, opponent (L.); sa_tthu~, sa_thi_ = comrade (P.); sa_thi (N.B.Or.Aw.H.Marw.G.M.)(CDIAL 13366). Sa_thi = companionship, friendship (Or.)(CDIAL 13367). sattha = caravan (Pali.Pkt.); sa_t.ha = village (Pas'.); sa_t. (Par.); sa_th = company (K.); sa_thu = caravan (S.); sa_th small caravan (L.); company (P.); sa_thu_ = company, train (Oaw.); sa_th, poet. Sa_tha_ (H.); sa_tha = a group of people (H.); sa_th, sa_thva_ro = company of travelers (G.); sa_th = company, companionship (M.); sa_thi = companionship, friendship (Or.); sa_th, sa_t = with (Tor.); sa_ti (Sh.); sa_th (P.); sa~_th (Ku.); sa_tha (N.); sa_the, sa_th (B.); sa_tha (Or.); sa_th (Mth.Bhoj.Aw.H.); sa_thi_ (Marw.); sa_thim (OG.); sa_thi_ for the sake of (M.); sa_rtha = caravan, troop, company (MBh.); sa_rthena = in company with (Skt.)(CDIAL 13364). Satthava_ha = caravan leader (Pali.Pkt.); satthavaha, sattha_ha (Pkt.); sa_tha_ = fellow-traveller, pilgrim, guide (B.); sa_thava_hu = caravan leader (OG.); satvu~ = merchant (Si.); satthava_hika = caravan leader (Pkt.); sa_thuya_, sa_tho = pilgrim's guide, companion (B.); sa_rthava_ha = caravan leader (MBh.)(CDIAL 13365). sa~_t = companion (Sh.); sa_th, sa_t = partner (M.); sa_than. = companion (M.); sa_thin (H.); satthuna = friend (Pali); sa_rthin = companion on a journey, merchant (MBh.)(CDIAL 13366). Cf. sa_th [Hem. Des. sattharo = Skt. samu_ha, a group; fr. Skt. sa_rtha, a caravan] company, society, association; fellowship; a partner; a company of persons on a visit of condolence (G.lex.)

This interpretation is suggested because the des'i_ phonemes for svastika_ are: suvatthi, sotthi = well-being (Pali)(CDIAL 13913). sa_thiyo = auspicious mark painted on the front of a house (G.)(CDIAL 13917). svastika_ is the emblem of the seventh deified teacher of the present era (Jainism)(G.lex.)



The symbol or the word, 'svasti' becomes an invocatory message on many epigraphs of the historical periods in Bha_rata.

svasti welfare, health, prosperity, blessing; joy, happiness, bliss (Ka.); goodness; may it be well! hail! health!; so be it! amen!; an auspicious particle used at the beginning (of a letter etc.)(Ka.lex.)svasti good fortune (RV.); suvatthi, sotthi well-being (Pali); s'vasti (NiDoc.); satthi, sotthi welfare, blessing (Pkt.); seta good fortune (Si.)(CDIAL 13915). 3349.Image: svastika: sathiya_, satiya_ mystical mark of good luck (H.); sa_thiyo auspicious mark painted on the front of a house (G.); sotthika, sotthiya auspicious (Pali); satthia, sotthia auspicious mark (Pkt.); svastika auspicious; auspicious mark (R.)(CDIAL 13916). svastika auspicious mark (R.); sotthika, sotthiya auspicious (Pali); satthia, sotthia auspicious mark (Pkt.); sathiya_, satiya_ mystical mark of good luck (H.); sa_thiyo auspicious mark, painted on the front of a house (G.)(CDIAL 13916).
cf. svastha well, healthy (MaitrUp.)(CDIAL 13917). suttige rice and cocoanut kept for 'swastika', an auspicious ceremony; sutye to set apart some rice and/or cocoanut as an offering to a deity in order to cure some disease supposed to have occurred due to the wrath of that deity (Tu.lex.) s'asta auspicious, happy, well, right (Skt.Ka.); best, excellent (Ka.)(Ka.lex.) s's'te xuda_ God be praised (Pas'.); sattha praiseworthy (Pkt.); cust beautiful Dikkuma_ri_ (Pa_rs'van.); suvaccha_ (Pkt.)]; su_ci_ fairy (Wg.Kal.)(CDIAL 13514). sotthi [svasti (Skt.) = su + asti] well-being, safety, blessing; brings future happiness; sotthi hotu hail! sotthin in safety, safely; sotthina_ safely, prosperously; suvatthi id.; sotthi-kamma a blesing; sotthi-ka_ra an utterer of blessings, a herald; sotthi-gata safe wandering, prosperous journey; sotthi-gamana id.; sotthi-bhava well-being, prosperity, safety; sotthi-va_caka utterer of blessings, a herald; sotthi-sa_la_ a hospital (Pali). sotthika, sotthiya happy, auspicious, blessed, safe; di_gha-sotthiya one who is happy for long; sotthiyya = sotiya a learned man, a brahmin; sotthivant lucky, happy; sottha_na blessing, well-fare (Pali.lex.) cottu < svam neut.nom.sing. of sva one's own (RV.)(CDIAL 13893). property, possessions of two kinds (ta_varam and cankamam); gold (Ta.); sottu (Te.Ka.)(Ta.lex.) Swastika symbol: cuvasti < svasti a Sanskrit indeclinable denoting auspiciousness, used at the beginning of inscriptions, calendars, etc.; cuvastikam < svastika a mystical mark; a yo_gic posture. svasti-va_cana ve_da recited in the presence of idols taken in procession (Ta.lex.) svastika a kind of mystical mark (shaped like a Greek cross with the extremities of the four arms bent round in the same direction)(Ka.lex.) svastika (sva_sta s'ubha_ya hitam ka) a kind of mystical mark on persons or things denoting good luck; a lucky object (Skt.lex.) (Kho.)(CDIAL 12365). s'asya best, excellent; praiseworthy, laudable (Skt.lex.) s'asa_ praise, song of praise (RV. v.41.18); s'asta song of praise (VS. xxxiii.24; RV. iv.3.15)(Vedic.lex.) s'asti praise, eulogy; a hymn of praise (sto_tra)(Skt.lex.) s'am.s to praise, extol; s'am.str. a reciter of hymns; a praise, a panegyrist (Skt.lex.) ca_sta_ < s'a_sta_ nom. sg. of s'a_str. a village deity, aiyana_r (Cu_t.a_.); ca_sta_ppiri_ti feeding of brahmins for propitiating ca_sta_ (Na_.)(Ta.lex.) s'a_str. a teacher, an instructor; a ruler, king, sovereign; a father; a Buddha or Ji_na; or a deified teacher of the Buddhas or Jainas (Skt.lex.) s'a_s to instruct (RV. ii.28.9); to direct (RV. x.32.4); to command (RV. viii.34.1); to praise (RV. i.189.7); to guide (RV. vi.54.2); s'a_sa commander, ruler (RV. x.152.1)(Vedic.lex.) Well-being: suvatthi-, sotthi- well-being (Pa.); s'vasti (NiDoc.); satthi-, sotthi- blessing, welfare (Pkt.)(CDIAL 13915). svasti good fortune (RV.); suvatthi, sotthi well-being (Pali); s'vasti id. (NiDoc.); satthi, sotthi blessing, welfare (Pkt.); seta good fortune (Si. < *soti < sustha (CDIAL 13915). svastha well, healthy (MaitrUp.); sattha in good health (Pkt.); sasto (Gypsy); sa_stu (Phal.); sasti_ sound, healthy (Pas'.)(CDIAL 13917). suvastika_ a godess [suvatsa_ name of a

svastis'ri_ a Sanskrit expression used at the beginning of inscriptions, letters, etc. to denote auspiciousness (Ta.lex.) cf. sotthika, sotthiya adj. (fr. sotthi) happy, auspicious, blessed, safe; sotthi (Skt. svasti = su + asti) well-being, safety, blessing (Pali.lex.) svasti welfare, happiness (RV. i.89.6); godess of welfare (RV. iii.38.9; TS. vi.1.5); svasti-ga_ leading to fortune (RV. vi.51.16); svasti-ta_ welfare (Aitre_ya A_ran.yaka. i.5.2); svasti-da_ giving happiness (RV. x.17.5); happy, fortunate, affording happiness (RV. vi.46.9); welfare (RV. x.101.7); leading auspiciously (AV. xiv.2.8)(Vedic.lex.) Image: svastika: sotthi-va_cakam < svasti-va_cana a portion of the Ve_das recited with a view to auspiciousness; Ve_da recited in the presence of idols taken in procession (Vina_yakapu. 15,117); co_taka-va_kkiyam mandatory precepts (Ci. Po_. Pa_. Avai. 15); co_ttam < sto_tra expr. of salutation from an inferior (Tiv. Periyati. 2,2,6); co_ttu id. (Tirukko_. 173)(Ta.lex.) svasti-s'ri_ a Sanskrit expression used at the beginning of inscriptions, letters, etc., to denote auspiciousness (Ta.lex.) co_ttikam < svastika_sanam a yo_gic posture symbolic of success, which consists in sitting with legs crosswise while the body is held erect and at ease (Pirapo_ta. 44,7); cuvattika_can-am id.; cuvattikam, cuvasti,

cuvatti a Sanskrit indeclinable denoting auspiciousness, used at the beginning of inscriptions, calendars, etc; cuvastikam a mystical mark denoting auspiciousness; a yo_gic posture; cuvattikam a mystical design (Vina_yakapu. 15,48); a kind of sitting posture (Cilap. 8,25); co_ki < jo_gi (Ka.) < yo_gin a caste of itinerant Telugu mendicants, who are dexterous jugglers and snake-charmers, and claim a profound knowledge of charms and medicine (E.T. ii,494)(Ta.lex.) svasti good fortune (RV.); suvatthi, sotthi well-being (Pali); s'vasti (NiDoc.); satthi, sotthi blessing, welfare (Pkt.); seta good fortune (Si.)(CDIAL 13915). svastha well, healthy (MaitrUp.); sattha in good health (Pkt.); sasto (Gypsy); sa_stu (Phal.); sasti_ adj. sound, healthy (Pas'.)(CDIAL 13917). sotthika [svasti = su + asti (Skt.)] well-being, safety, blessing; brings future happiness; sotthi hotu hail! sotthin in safety, safely; sotthina_ safely, prosperously; sotthi-kamma a blessing; sotthi-ka_ra an utterer of blessings, a herald; sotthi-gata safe wandering, prosperous journey; sotthi-bha_va well-being, prosperity, safety; sotthi-va_caka utterer of blessings, a herald; sotthi-sa_la_ a hospital; sotthika, sotthiya adj. happy, auspicious, blessed, safe; sottha_na [svastyayana (Skt.)] blessing, well-fare; sovatthika safe; in the shape of a svastika; sovatthika_lanka_ra a kind of auspicious mark; sotthivant adj. lucky, happy, safe (Pali.lex.) svasti = welfare, happiness (RV 1.89.6; goddess of welfare (RV 3.38.9; TS 6.1.5: daivi_ svastih, pathya_m svastim, 'svasti sam.jn~a_ devata_')(Vedic.lex.) svastiga_ = leading to fortune (RV 6.51.16); svastita_ welfare (RV 1.5.2); svastida_ giving happiness (RV 10.17.5); svastimant happy, fortunate, affording happiness (RV 6.46.9); svastiva_h bringing welfare (RV 10.101.7); svastiva_han leading auspiciously (AV 14.2.8); svastyayan obtainment of welfare; procuring welfare (TS 1.2.9.1)(Vedic.lex.)

svastika the meeting of four roads; the crossing of the arms, making a sign like the cross (Skt.lex.) canti the cross roads, junction of three or more roads (Tirumuru. 225); cantikkarai junction where several roads meet (Ta.lex.)

svastika, svastikam a particular mode of sitting practised by yogins (Skt.lex.) kattari-co_ttikam < kartari + svastika gesture with both hands in which the fore-fingers of either hand are stretched out together whilst the rest are kept bent to represent a pair of scissors, ear of corn, etc. (Parata. Pa_va. 64)(Ta.lex.) cuttika_tan-am < svastika_sana a yogic posture symbolic of success (Tirukka_l.at. 18,22)(Ta.lex.) s'ukta united, joined (Skt.lex.)

s'astra an instrument for cutting or wounding, a weapon; a sword, a knife, a scymitar, korahu (Ka.); iron; s'astraka iron (Skt.Ka.); s'astra-kriye weapon-business; s'astra_ji_va living by the profession of arms: a soldier (Ka.); s'astri a knife (Skt.Ka.)(Ka.lex.) Knife, dagger, adze; iron: s'astra instrument for cutting (S'Br.); iron (Skt.); s'astraka knife, iron (Skt.); s'astri_ knife, dagger (Skt.); sattha, satthaka knife (Pali); sattha dagger (Pkt.); satthia_ knife (Pkt.); s'astir, saster iron (Gypsy); s'eitr, s'e_l, leis' knife (Pas'.); s'e_thar, s'a_htar iron (K.); satthra_ adze (P.); sat-a weapon, instrument (CDIAL 12367).

satthia_ knife (Pkt.); s'astra instrument for cutting (SBr.); s'astraka knife, iron (SSkt.); s'astri_ knife, dagger (Skt.); sattha, satthaka knife (Pali); sattha dagger (Pkt.); s'astir, saster iron (Gy.); seitr knife (Pas'.); s'e_thar iron (K.); satthra_ adze (P.); sat-a weapon, instrument (Si.)(CDIAL 12367). sasa carpenter, wheelwright (Si.)(CDIAL 5621). cf. kattari (Ta.); kattarisu (Ka.) to cut with scissors, clip, snip, shear (Ta.lex.); kattarikai (Perun.. Vattava. 14,7); a dance gesture: forefinger and middle finger are held together and pointed upward, while the thumb and the little finger remain bent, the little finger being kept stretched (Cilap. 3,18, Urai)(Ta.lex.) kartari scissors, knife (Sus'r.); kattari_ id., shears (Pali); scissors, shears (Pkt.)(CDIAL 2l858). { Two semantic streams lead into two morphemes: s'astra and kartari: s'astra instrument for cutting (S'Br.); sattha, satthaka knife (Pali); sattha dagger; satthia_ knife (Pkt.)(CDIAL 12367). < kati.r knife; katy knife (Ko.)(DEDR 1204); tar-ika a kind of axe, chisel (Ta.)(DEDR 3140) < tar.c to cut (Go.)(DEDR 3146).

cattiram weapon used in close combat; hand-weapon as sword, lance (Pin..); spear, javelin; iron; surgeon's knife, lancet; catti-taran-< s'akti-dhara Kuma_ra as having javelin; cattiya_n- id. (In-. Na_r-. 1); **catti** spear, dart (Perun.. Makata. 20,63); trident (Perun.. Makata. 14,153); **catti** pit in which a flag-staff is planted (Perun.. Ila_va_n.a. 6,56, Kur-ip.)(Ta.lex.) catturu < s'atru enemy, foe (Civaraka. A_yutte_va. 3)(Ta.lex.) sattha (Vedic. s'astra) a weapon, sword, knife, coll. 'arms'; often in combination: dan.d.a + sattha coll. 'arms'; satthan a_harati to stab oneself; sattha-kamma application of the knife, incision, operation; sattha-ka_raka an assassin; sattha-van.ijja_ trade in arms; sattha-ha_raka an assassin; satti (Vedic. s'akti orig. identical with 'ability,

power') knife, dagger, sword; di_gha-dan.d.a-satti sword with a long handle; tikhin.a-satti a sharp knife; mukha-satti piercing words; satti a spear, javelin; satti-pajara lattice work of spears; satti-



langhana javelin dance; satti-simbali-vana the forest of swords (in purgatory); satti-su_la a sword stake; sattu (Vedic. s'atru) an enemy; sattuka an enemy; satthaka a knife, scissors; dan.d.a-satthaka a knife with a handle; satthaka-nisa_dana (cf. Skt. nis'a_tana) knife-sharpening; sattha-nisa_na (cf. Skt. nis'a_na) id.; satthaka-va_ta a cutting pain (Pali.lex.) cf. s'astra instrument for cutting (S'Br.); sattha dagger (Pkt.); satthra_ adze (P.)(CDIAL 12367). sathiya_ surgeon, oculist (H.); astra-s'astra: s'astr. one who cuts up (AV.); s'as cut (Skt.)(CDIAL 12366); s'astra instrument for cutting (S'Br.); s'asya to be slaughtered (Skt.) (CDIAL 12368); vis'asti cuts up (RV.); 3 pl. vis'asanti (S'Br.); visase_i kills; pp. visasiya (Pkt.); bisasna_ to cut up the body, scrape, hurt, kill (H.)(CDIAL 11934). Warrior: satti (Vedic. s'akti) ability, power (Pali); yatha_ satti, yatha_ sattin, yatha_ sattiya_ as much as one can do, according to one's ability; satta (Vedic. sattva living being; satvan strong man, warrior; sant) a living being, creature, a sentient, rational being, a person; sattava (a diaeretic sattva) id.; satta-ussada teeming with life, full of people; sattha-van.ijja_ slave trade; sattatta state of having existence (Pali.lex.) sattha competent, able (Pali.lex.)

Epigraphs with endless-knot motif



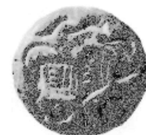
Mcmohan cylinder seal with six signs, found in 'Swat and Seistan', unrolled photographically and the unbroken stamp-end of the seal; positive impression of the cylinder showing Harappan inscriptions (Robert Knox, 1994, A new Indus Valley Cylinder Seal, pp. 375-378 in: *South Asian Archaeology* 1993, Vol. I, Helsinki) The triangle motif is similar to the motif shown on M-443B.

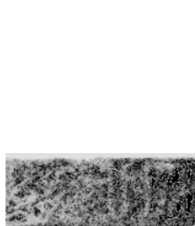
"The Seistan findspot of this seal is of great interest. Evidence exists for the movement of Indus commodities, and, therefore, Indus commercial activities in the direction of western Asia and, in return, from there to the Indus world.Evidence for the Harappan penetration of Seistan and farther to southeastern Iran is scanty but includes at least one other Indus inscription from an impression of a sherd discovered at Tepe Yahya, period IV A (c. 2200 BC) (Lamberg- Karlovsky and Tosi 1973: pl. 137)" (Knox, p. 377).

Our hypothesis is that the traders with their seals, and people who travelled in Swat and Seistan, in search of minerals, were the bronze-age smiths and lapidaries of Meluhha.

h613Ah613C4259 Endless-knot motif?

 Chanhudaro49A  Chanhudaro49B

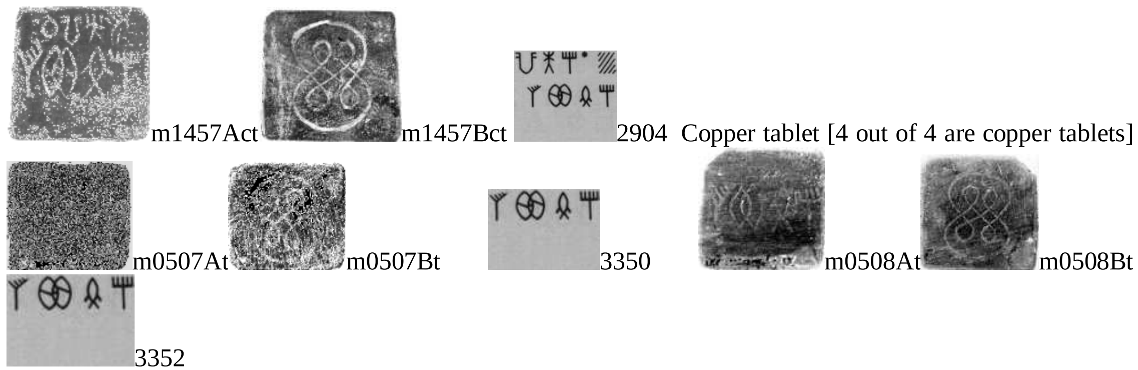
 Chanhudaro50A  Chanhudaro50B

m0463Atm0463Bt 2813 [See  also identical tablets: m0457 to 0462]



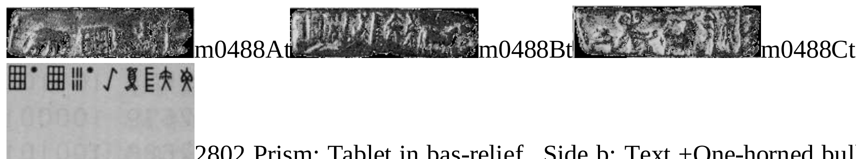
Four-crosses motif on a Mohenjo-daro tablet M-463 is comparable to the same motif which appears painted on a potsherd of Malwa ware from Navdatoli, Maharashtra, c. 1700-1400 BCE. [After H.D.Sankalia, SB Deo and ZD Ansari, 1971, *Chalcolithic Navdatoli: the excavations at Navdatoli, 1957-59*. Poona: 216f., fig. 87: D 585 (sherd

8355 I A 13/5; After Paropla, 1994, p.55, fig. 4.4).


m1457Act m1457Bct 2904 Copper tablet [4 out of 4 are copper tablets]

m0507At m0507Bt 3350 m0508At m0508Bt

3352


m0488At m0488Bt m0488Ct

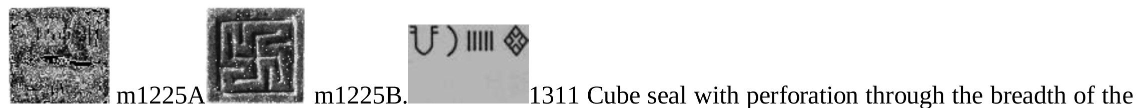
2802 Prism: Tablet in bas-relief. Side b: Text +One-horned bull + standard. Side a: From R.: a composite animal; a person seated on a tree with a tiger below looking up at the person; a svastika within a square border; an elephant (Composite animal has the body of a ram, horns of a zebu, trunk of an elephant, hindlegs of a tiger and an upraised serpent-like tail). Side c: From R.: a horned person standing between two branches of a pipal tree; a ram; a horned person kneeling in adoration; a low pedestal with some offerings [if it is a skull, it could be **man.t.ai** = skull (Ta.)].

man.d.a = a branch; a twig (Te.lex.)

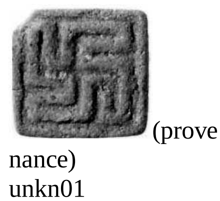
man.d.i = kneeling position (Te.lex.) mandil, mandir = temple (Santali) ma_d.a = shrine of a demon (Tu.); ma_d.ia = house (Pkt.); ma_l.a a sort of pavilion (Pali); ma_l.ikai = temple (Ta.)(DEDR 4796).

man.d.iga = an earthen dish (Te.lex.) **man.d.e** = a large earthen vessel (Tu.lex.) **man.di** earthen pan, a covering dish (Kond.a); cooking pot (Pe.); brass bowl (Kui); basin, plate (Kuwi)(DEDR 4678). man.d.e = head (Kod.)(DEDR 4682).

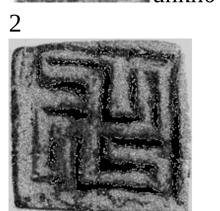
man.d.a_ = warehouse, workshop (Kon.lex.)


m1225A m1225B. 1311 Cube seal with perforation through the breadth of the seal Pict-118: svastika_ , generally within a square or rectangular border. m1389t

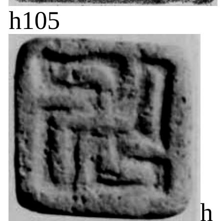

Rahman-dheri150

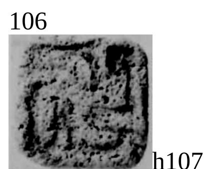

(provenance) unkn01


unkn02


h104


h105

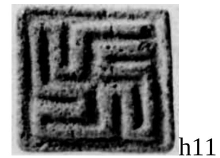

h106

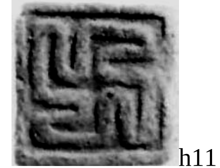

h107


h108

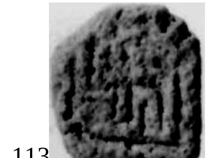

h109

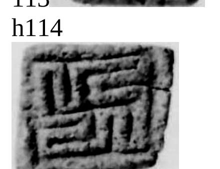

h110

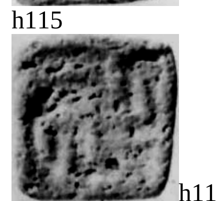

h111

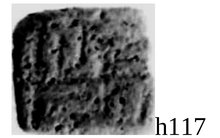

h112


h113

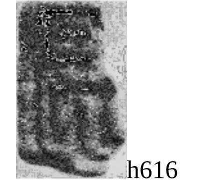

h114

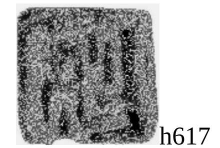

h115


h116

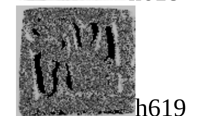

h117


h118


h616


h617

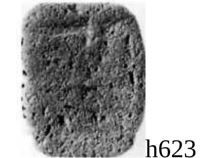

h618

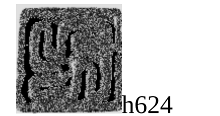

h619

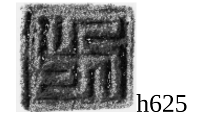

h620

h621 (Not illustrated)


h622


h623

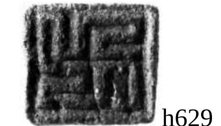

h624


h625


h626


h627


h628


h629


Lothal069


Lothal070

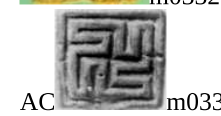

Lothal071

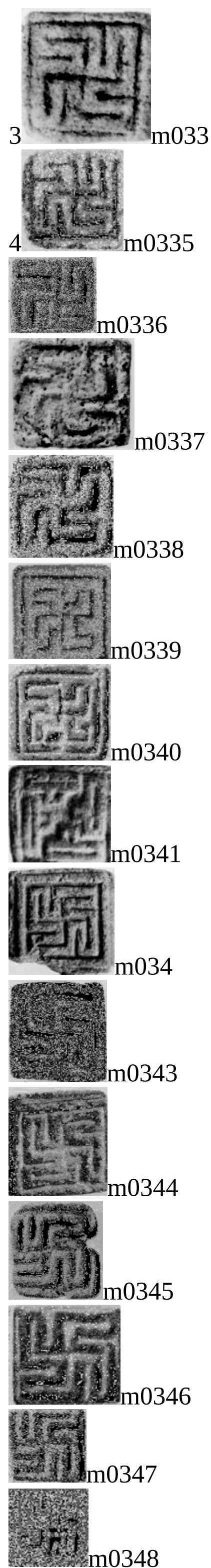

Lothal072

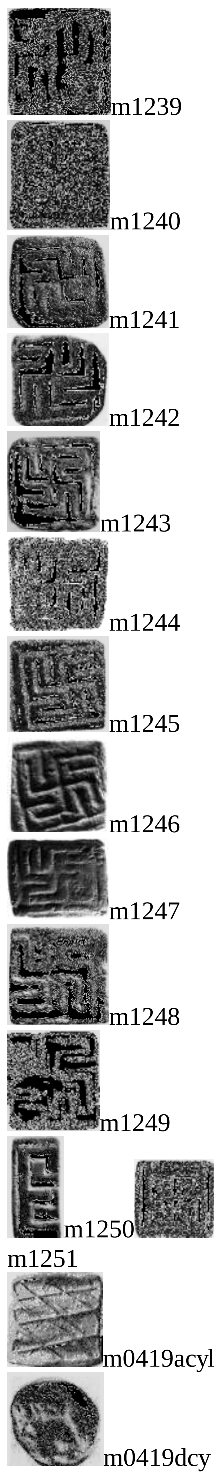

Mehrgarh14 Svastika_ sign on a seal, ca. 2800 BCE

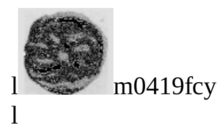

m0435t


m0332


AC m033


3 m033
4 m0335
m0336
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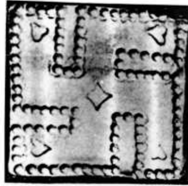
Svastika_ symbol used in historical periods



Stone toilet tray, Sirkap, Taxila, Stratum II (pl. g = No. 246, Marshall);

Gold amulet, Svastika_, 1st cent. CE, Sirkap, Taxila (Pl. 191, No. 85, Marshall).

Copper seal, svastika_, Sirkap, Taxila, stratum II, legend indistinct, pl. 55 no. 27, Marshall).



Site	Object
BHIMBETKA	ROCK-SHELTER PAINTING
"	"
HARAPPA (HARAPPAN CULTURE)	SEAL + SEALING
MOHENJODARO (HARAPPAN CULTURE)	"
RANGPUR MALWA WARE (CHALCOLITHIC)	POTTERY
DIST. COORG DIST. COIMBATOR (MEGALITHIC)	"
PRAHLADPUR (SUB PERIOD I A) RUPAR (PERIO V)	SEAL + SEALING
TAXILA	DIFFERENT OBJECTS
BHĀJĀ, KUDA, KĀRLE, JUNNAR NASIK	CAVE INSCRIPTION

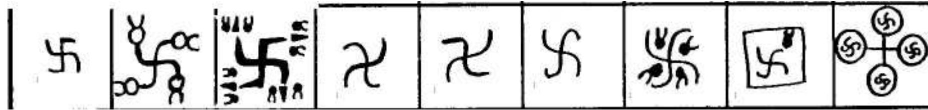
[Pl. 27, Svastika_ symbol: distribution in cultural periods]



[Pl. 28, A, Ramnagar, Lotapur, Mamdar, Singavaran: Punch-marked coins]

	Site	Object
B	NAGARI FINDS.	"
C	KAUŚĀMBĪ	UNINSCRIBED + INSCRIBED CAST COPPER COINS
D	KADA	COPPER COINS
E	ERAN	COPPER PUNCH-MARKED COINS

[Pl. 28, B to E: svastika_ symbol on punch-marked/cast copper coins]



[Pl.28, F: Ujjayini, copper coins with svastika_ symbol]

TAXILA	,,			
AYODHYA	,,			
ARJUNAYANA SIBIS KUNINDA KULUTA YAUDHEYA	,,			
SĀTAVĀHANA	COINS			

[Pl. 28, G to J, Taxila, Ayodhya, Arjunayana, Sibis, Kun.inda, Kuluta, yaudheya, S'a_tava_hana coins: Svastika_ symbol]

Thomas Wilson, [curator, Department of Prehistoric Anthropology], notes: "(svastika_) is characterized by straight bars of equal thickness throughout, and cross each other at right angles, making four arms of equal size, length and style." While not finding definitive clues as to its time or place of origin, Wilson concludes that the svastika_ was perhaps the first symbol to be made with 'a definite intention' and a continuous or consecutive meaning, the knowledge of which passed from person to person.



The view that the symbol may perhaps have represented a known object, is echoed by Ashley and Butts. H.J.D Ashley wrote: "In the first instance probably the svastika_ may have represented the course of the sun in the heavens revolving normally from left to right." (1925, The Swastika: A study, *The Quest*, January 1925). Edward Butts noted: "…It is evident that the svastika_ figure is only emblematic of what it originally was, from the fact that it must have been a more useful device and of very necessary application to have forced itself into the needs of so many widely distributed localities." [1901, *Statement No.1: The Swastika*, Kansas City, Franklin Hudson Publishing Co.]

Friedrich Max Mueller characterized the symbol with its hooks facing left-ward as suavastika, but there is no corroboration for such a lexeme. Wilson analyzed the occurrence of the symbol on artifacts – from funeral urns to spears – and attempted a classification by physical and symbolic properties to fathom some logic as to why the symbol has been prevalent in so many cultures for so long. It is difficult to surmise that the sign was just ornamental; it had some specific symbolic importance.

Troy. Svastika_ with four birds. [Compare the two ducks shown with the symbol in Cyprus. Source: Dr. Henry Schliemann, 1885, *Tiryns: the prehistorical palace of the kings of Tiryns*, New York, Charles Scribner's Sons]. "According to the migration theory (as opposed to the coincidence theory), the svastika_'s earliest known habitat is a wide territory beginning at the valley of the river Indus in India and extending westward across Persia and Asia Minor to Hissarlik (where the remains of ancient Troy were found) on the shore of the Hellespont…W. Norman Brown contented (1933, The Swastika: The study of the Nazi claims of its Aryan Origin, Emerson Books) that 'for combined age, frequency, and perfect execution, the examples from the Indus Valley are the most interesting.'..Brown noted that the svastika_ was among India's 'first civilized

remains, as early as 2500 BCE, possibly 3000 BCE, and appears in forms perfectly developed, in contrast with slightly older but primitive and less perfect forms found farther westward.' More important, Brown concluded that it existed in India before the arrival of the Aryans. 'Like other symbols which the Aryans of India used on coins and stone sculpture, it came to them from non-Aryan predecessors. It was a simple minutia of the spoils the victors had taken from those they had vanquished.'..The svastika_ was also discovered in the early 1930s in explorations of the ancient civilization in Baluchistan (in Central Asia)…The next chronological stratuth' (as Brown calls it) for the svastika_ appears at Hissarlik, the site of Homer's Troy, and many older cities that had risen and perished before it...According to Brown (and contrary to Schliemann's assertion), it was at Hissarlik or elsewhere in Asia Minor that the Indo-Europeans may for the first time have met the svastika_, but this is only a supposition." (Steven Heller, 2000, *The Swastika: symbol beyond redemption?* New York, Allworth Press, pp. 28-33).

W. Norman Brown who refuted the claim of Indo-European origins of the svastika_ was emphatic that the people who first used the symbol were the 'Japhetic' and the Indus Valley Peoples. "Whatever these various peoples were, they were not Indo-Europeans; and the Indo-Europeans, as far as our evidence indicates, did not know the svastika_ until a thousand years after the time of its earliest preserved specimens." He further adds: "Egypt seems to have been without it (svastika_) until very late, when Greece had arisen. Ancient Assyria and Palestine, as far as I know, were also without it… Although by 2000 BCE it extended across to the Hellespont, it passed to the north of the great Semitic territory and missed that people. The jews did not use it. Early Christianity seems not to have known it. The Christians used the svastika_ only after their religion was well established in Europe."



Many bronze articles with svastika_ sign; Dates: Unknown [Source: Thomas Wilson, *Report of National Museum*, 1894]. Celts who were proficient bronze- and gold-workers also used the svastika_ motif.

Bronze pin-head from the Caucasus





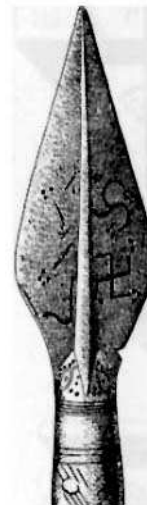
Marks of three svastika_ on black pottery from Caucasus

Fragment of bronze ceinture from Necropolis of Koban, Caucasus



Bronze pin from Bavaria





Spearhead with svastika_, from Germany



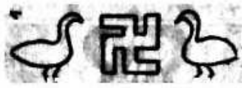




Footprints of the Feet of the Buddha; note the svastika_ just below the fingers. [Source: Alexander Cunningham, 1962, *The Stupa of Bharhut: a Buddhist monument*, Varanasi, Indological Book House].

Cypriot artifact with svastika_. Note the symbol on the stylized, flower-like wheel of the chariot.

Ireland. Triskelion on carved wood.



Cypriot artifact with svastika_ flanked by two ducks.

Altar from south of France.

Cypriot artifact with svastika_ on the shoulder of the warrior holding a bull model in his left hand; his hind-part is the hind-part of a bull?



Ancient coins of Bharat with svastikas, normal and ogee (After Figs. 231 to 234 in Thomas Wilson, opcit). The coins were found by Cunningham at Behat near Shaharanpur. E. Thomas assigns them to about 330 BCE. (Edward Thomas, *Jour. Royal Asiatic Soc. (new series),* I, p. 175). The svastika sign does not appear in Indo-Bactrian (ca. 300 to 126 BCE), Indo-Sassanian (from 200 to 636 CE) or later Hindu or Mohammedan coins. The sign of svastika becomes an integral part of the temple architectural tradition and becomes a sacred symbol of the Hindu, Buddha and Jaina traditions.

On Siddham and other symbols used in Bharatiya inscriptions

The following pages are devoted to a survey of symbols used in Bharatiya tradition of epigraphy and relating many symbols to the lexical concordances. The range of topics covered is extensive and is intended to evolve a method for understanding the use of symbols in writing systems. The survey begins with the use of **siddham** symbol.

This is a wide ranging survey of many lexemes in search of the substratum glosses which may be related to Sarasvati hieroglyphs.

The survey establishes that it is an error, in semantic terms, to treat the dialectical continuum of Bharat as composed of water-tight compartments of language families. There has been intense interaction among all the people of Bharat right from the days of their lives on the banks of River Sarasvati when a civilization dawned with bronze-workers. This interaction has resulted in many borrowings and re-borrowings. More linguistic studies need to be undertaken to delineate the Proto-Bharatiya idiom which was in vogue in the linguistic area on the banks of Rivers Sarasvati and Sindhu between ca. 3500 BCE and 1400 BCE. An attempt at cracking the code of the Sarasvati Hieroglyphs will be presented in the volume containing Sarasvati Epigraphs.

The resources presented herein are intended to be the data base to support this attempt. The database is obviously as diverse as the orthographic extravaganza evidenced by the hieroglyphs contained in pictorial motifs and signs alike on over 4,000 inscribed objects..

An invocation: **siddham** lit. success has been attained; an invocation found in early inscriptions at the commencement of the text; sometimes confused with pran.ava; generally indicated in later records by a symbol having several varieties; sometimes indicated by the letter cha (EI 30; CII 3); Alphabet: siddha ma_tr.ka_ name of the Indian alphabet derived from late bra_hmi_ and from which are derived north Indian alphabets like na_gari_, wrongly called kut.ila etc. (IEG, p.310). siddhi (CII 4) emancipation; sometimes used at the beginning of documents to ensure the success of the undertaking (IEG). "At the beginning of an inscription generally and also at its end occasionally, there is an auspicious symbol or word or passage in adoration to a deity. The word siddham and svasti at the beginning of inscriptions are commonly found, though siddham gradually came to be represented by a symbol found at the beginning of numerous inscriptions. Among other auspicious symbols, occasionally we have the svastika (Archaeological Survey of South India, Vol. I, Plate 69; Archaeological Survey of Western India, Vol. IV, Plate 49, Nos. 5-7, 9, 11, 13-14), the trident-on-wheel called triratna [ASWI, Vol. IV, Plate 49, Nos. 8, 10, 15; sometimes called nandipada (Rapson's catalogue, p. clxxv), British Museum Catalogue of the Coins of the Andhras, London, 1908], the s'ri_vatsa [together with the svastika symbol at the beginning of the Hathigumpha inscription of Kha_ravela (Select Inscriptions, Plate facing p. 208)], the tree-in-railing (at the end of the Hathigumpha inscription, ibid., Plate facing p. 209), and certain unidentified symbols (ASWI, Vol. IV, Plate 44-- Bhaja No. 7; Plate 45-- Kuda Nos. I,6,16; Plate 46-- Kuda Nos. 20, 22, 24, 26) in early inscriptions (cf. Epigraphica Indica, Vol. XXXIII, p. 247 and Plate facing p. 251)... A man:gala, i.e. a benediction or an auspicious word, at the beginning, in the middle and at the end of a composition was believed to ensure its completion and preservation. The auspicious word siddham is found at the beginning of numerous early records (cf. Select Inscriptions, pp. 157, 160, 164, 165, 169, 176, 191, 193, 196, 200, 203, 204, 205; for the contractions sdha and sdhi cf. ibid., pp. 150, 156). This word was in later times generally indicated by a symbol of a varying shape. The symbols was sometimes followed by the auspicious word svasti which, in some cases, stands singly at the beginning of epigraphic records (ibid., p. 331, text line 1; p. 403, text line 1; Epigraphic Indica, Vol. XXVIII, Plate facing p. 62, text line 1). Sometimes the man:gala : siddhir-astu, having the same import as siddham, as also a bigger man:gala sentence beginning with svasty-astu, is found at the end of the documents (cf. Select Inscriptions, p. 298, text

line 24; p. 385, text line 41; p. 409, text line 30; p. 327, text line 9; p. 397, text line 8; p. 441, text line 55; p. 455, text line 15). In some cases again a symbol, which is apparently a variant of the siddham sign, appears at the end of a document and, in rare cases, also in the body of its text especially at the end of a section of it (cf. Epigraphica Indica, Vol. III, p. 129, Plate, text lin3 24; Select Inscriptions, p. 457). Besides the siddham symbol, various other auspicious symbols also appear in inscriptions.

"An inscribed fragment of a pillar was discovered in the village of Barli in Rajasthan by the late Pt. G.H. Ojha in 1912 (Ojha : Pra_ci_nalipima_la_ (Hindi), p. 2)... the first letter (form: O with a right loop on top) was read as vi_... Dr. K. P. Jayaswal... denied this mark as a sign for long medial i_... dated it to 374-373 B.C. (JBORS, 1930, p. 67-68)... Dr.D.C. Sircar... restores as siddham.. He places the record in the 1st century B.C." (C.S. Upasak, The history and palaeography of Mauryan Bra_mi_ Script, Nalanda, 1960, pp. 185-186).
http://sarasvati.simplenet.com/dictionary/2863to.htm

Incidence of duplicate texts

Texts of inscriptions which occur more than once have been arranged by Parpola (1984, p. 120) into five groups by final signs (read from right to left). The first group is seen to have a high incidence of duplicates. The inscription (item 2 of Group I) occurs at Kalibangan with a rare iconographic motif. Parpola surmises, **'on the basis of Kalibangan seals, this group of officials may have been of a military nature, either soldiers or guards, for the motif may be interpreted as a deity of war'**. (Parpola, 1994, p. 120).

Person with pigtail, metal pit furnace; boring instrument for epigraph-writers



Nausharo09



Kalibangan050c 8031 Pict-53: Composition: body of a tiger, a human body with bangles on arm, a pig-tail, horns of an antelope crowned by a twig.



Kalibangan065aKalibangan065A6Kalibangan065E

8024 Steatite,   cylinder seal; Thapar, 1975, p. 28 No. 4; cf. During Caspers, 1982, Pl. 1b, a stamp seal from Mohenjodaro with a similar 'centaur', and Amiet, 1972. Collon, 1987, Fig. 605. This cylinder seal impression shows the duelling figures but with an extra arm; the ligatured body of an animal is also known on stamp seals. Pict-104: Composition: A tree; a person with a composite body of a human (female?) in the upper half and body of a tiger in the lower half, having horns, and a trident-like head-dress, facing a group of three persons consisting of a woman (?) in the middle flanked by two men on either side throwing a spear at each other (fencing?) over her head.



m0311 Pict-52: Composite motif: body of a tiger, a human body with bangles on arms, antelope horns, tree-branch and long pigtail. 2347

Substantive: *sund* 'pit (furnace)'; *sum*, *sumbh* a mine, a pit, the opening into a mine, the shaft of a mine; sum bhugak the entrance to a mine, pit's mouth (Santali). s*un.d.i* a semi-hinduised

aboriginal caste; this caste are the distillers and liquor sellers; *sun.d.i gadi* a liquor shop (Santali) *cun.d.* to boil away (Ko.); *sun.d.u* to evaporate (Ka.); *cun.d.u* to be evaporated or dried up (Te.); *s'un.t.hi* to become dry (Skt.)(DED 2662).
Glyph: *su_nd gat.* knot of hair at back (Go.); *cundi_* the hairtail as worn by men (Kur.)(DEDR 2670).

The person with pigtail is ligatured to a tiger, *kol*; rebus: *kol* 'metal'; thus, the ligatured glyph can be read as: metal pit furnace: *kol + sund*

On Kalibangan 065 cylinder seal, a glyph also shows fencing.

Glyph: *garid.i, garid.i_* fencing, fencing school (Te.); *garad.i, garud.i* fencing school (Ka.); *garad.i, garod.i* id. (Tu.); *karat.i, karut.i, kerut.i* fencing, school or gymnasium where wrestling and fencing are taught (Ta.)

Rebus: *gharr.a* 'an instrument for boring used principally to bore holes in arrow shafts to admit the arrow heads; to bore holes'; *gharr.atek bhugakkeda* 'it was bored by means of a *'gharr.a'*; *sen:gel gharr.ateko toda* 'they produce fire by friction' (Santali) *garad.avum* to form or fashion (letters in learning to write) by drawing a style or dry pen through the letters of the copy-book (G.)

Glyph: *garad.o* a copyslip for little children to write with a style or dry pen (G.) kan.t.am iron style for writing on palmyra leaves (Ta.); *gan.t.amu* id. (Te.)(DEDR 1170). *gharad.a_yo, gharad.can.um, ghad.can.um* compact structure, frame or make; closeness, compactness; *ghad.avum* [Skt. *ghat.* to form] to fashion, to forge; to shape; to make by hammering, chiseling, chipping; to manufacture; **ghad.tar** manufacture; an article manufactured by beating, hammering, or cutting; skill displayed in a manufactured article; the wages of a manufacturer or artisan, who makes an article (G.)

Glyph: *gharad.iyo* a wooden ladle with which little cakes are turned in a frying pan (G.)
Glyph: *ghared.i_* a pulley; *gha_ri_* the circumference (G.)

d.a_kin.i = 'sword' of a female demon

d.a_n:khli_, d.a_n:khal.um [Hem. Des. d.aggali_ = Skt. bhavanoparibhu_mi talam, an upper storey of a house] a small branch of a tree issuing from a larger one; **a twig** (G.lex.) [Note the imagery of a tree branch issuing from a larger one on a Kalibangan seal 050].

Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)
Substantive: *sal* workshop (Santali)

Substantive: *khanta gad.a* a pit from which earth has been dug out (Santali)
Glyph: *ka_nta* woman (Skt.)

Glyph: ad.aru twig (Tu.Ka.)(DEDR 67)
Substantive: *kohle* 'smith'; *aduru* native metal (Ka.); *ajirda karba* very hard iron (Tu.)
Glyph: *kul* 'tiger'

> **kol** metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

The cylinder seal thus conveys the possession of a priest (*garad.o, garod.o*): metal furnace smithy: *khanta gad.a, aduru kol*; the epigraph (three linear strokes + sprout): 3 *phut.ia* (3 copper ingots)

The ligatured person seems to speak out the possession [Glyph: *vali* to say, tell, narrate; n. sound (Ta.); *valli* to bark (Kor.); *vallih* to call, invite (Go.)(DEDR 5283)]:

Substantive: *bali* = iron ore, iron stone sand; the Kol iron smelters wash the ore from the sand in the river bed; *balgada* 'sand carried down by a flow of water' (Santali)



Anau, 450 kms east of the Caspian, in Kara Kum desert.

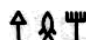
Glyphs used on Anau seal



Anau (means: 'new water') seal (black stone 1.3 X 1.4 cm.); two views.

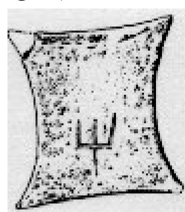
The seal has four signs comparable to the signs which occur on epigraphs of Sarasvati Civilization.

> `The implication of the seal (dated to c. 2300 BCE) is incredible," Dr. Hiebert said, because there's no existing evidence that these people had a written language. And the characters engraved in the stone stamp are unlike any ever seen. "It's not ancient Iranian, not ancient Mesopotamian...not Chinese." Anau civilization 2200 to 1800 BCE; discoveries of Dr. Fredrik T. Hiebert Source: New York Times, July 31, 2001 http://www.nytimes.com/2001/07/31/science/social/31SEAL.html



4418 This text occurs principally on *miniature* tablets of Harappa over 21 times.

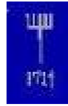
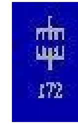
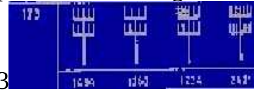
A three-pronged glyph (duplicated 'harrow') -- comparable to a variant of Sign 171 -- appears on a copper ingot (the so-called ox-hide ingot):



Crete. Inscribed Cretan copper ox-hide ingot (After Fig.82 in: Sinclair Hood, 1971, *The Minoans: Crete in the Bronze Age*, Thames and Hudson) In the Late Bronze Age, oxhide and plano-convex shaped ingots were used in the Aegean; elsewhere, only small plano-convex (bun-shaped) ingots were used."Bronze tools and weapons were cast in double moulds. The cire perdue process was evidently employed for the sockets of the fine decorated spear-heads of the Late Minoan period. Copper was available in some parts of Crete, notably in the Asterousi mountains which border the Mesara plain on the south, but it may have been imported from Cyprus as well. The standard type of ingot found throughout the East Mediterranean in the Late Bronze Age was about two or three feet long, with inward-curving sides and projections for a man to grasp as he carried it on his shoulder. Smaller bun-shaped ingots were also in use." (Sinclair Hood, opcit., p. 106). A variant of the inscribed sign, a comparable logograph, like a trident or a sheaf of corn, is used on inscribed objects of the Sarasvati Sindhu civilization.

The reading, from left to right: (*kod.*, artisan's workshop; *aduru bari_*, native metal (blacksmith), *dhokra*, metal-worker, *bakher*, homestead)

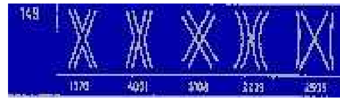
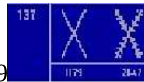
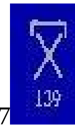
23. **|** (The long linear stroke which occupies the entire width of the seal is: **kod.a, kor.a** = in arithmetic one; 4 kor.a or kod.a = 1 gan.d.a = 4 (Santali.lex.) Substantive rebus: **kod.,** 'artisan's workshop'.The long linear stroke seen on this Anau stone seal, also appears on the Dholavira sign-board.

24. duplication of sign Sign 171 [See variants in Signs 172  and 173V173] *ad.ar* 'harrow'; rebus: *aduru* 'native metal'; *bar* 'two'; rebus: *bari_* 'blacksmith'; Glyph: *ma_va at.t.* 'to harrow'; *at.t.* to strike (Pa.); *ad.ar* an attack (Ka.); *at.ar* to beat, strike, mould by beating (Ta.)(DEDR 77). Cf. *adru* broken grain (Malt.); *adar* waste of pounded rice, broken grains (Kur.)(DEDR 134). *a~r.gom* 'a clod crusher, a harrow without teeth; to harrow; *a~r.gom bhuk* 'this hole into which the shaft to which the cattle are yoked, is inserted into the harrow' (Santali)

a

Substantive: *aduru* 'native metal'

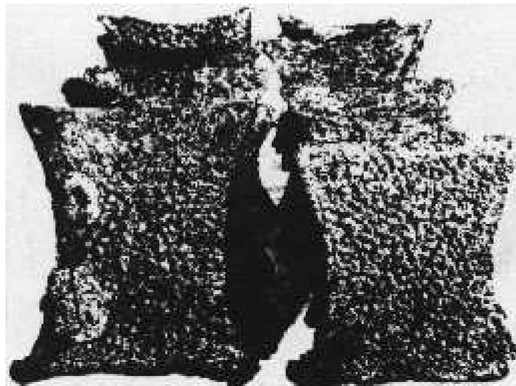
25.

V149V137*d.on:ka* footpath (Te.); *d.on:g* way (Nk.)(DEDR 2981). [See the rock-cut reservoir in Dholavira, scooping out in stone.] *dhokra* metal-worker (Santali) *d.hon.d.-jhod.o* a stone-cutter; a stone-mason; *d.hon.d.o* a stone (G.) *t.hok* a blow or stroke with a stick or a cudgel; *t.hoka_-t.hok* repeated hammering (G.)

26.

V176 **bakhor** 'teeth of a comb' **bakher** 'homestead'

Metal to which was attached a great price





Theban tomb painting showing man carrying an ox-hide copper ingot with a Minoan vase in his hand (After Clark, 1965; cf. Fig. 1.9 R.F.Tylecote, 1987, *The early history of metallury in Europe*, Longman, London)

Ox-hide ingots of copper in the Heraklion Museum, Crete. Size 54X31 cm. weight: 20 to 30 kg (Fig. 6.15 R.F.Tylecote, 1987, *The early history of metallury in Europe*, Longman, London)

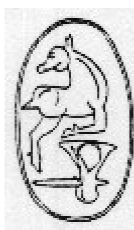
"That Cyprus produced copper from its local ore bodies in pre-Classical antiquity is not an issue in dispute...All metal objects of Late Cypriot II and III from the island were tin bronze, showing that metallic tin or tin objects must have been imported, and it may be presumed that the re-use and recycling of tin bronze artefacts was a regular practce during this period. In this context it will be recalled that the Cape Gelidonya ship also carried tin ingots. Likewise objects of silver and gold from Cyprus belonging to the fourteenth and thirteenth centuries BCE could only have been made of imported metal, whether or not the craftsmen were local or foreign. The flourishing metal industry of the island at this time betrays morphological and stylistic

influences from both the Aegean and the Near East, and the finds on the Cape Gelidonya shipwreck show that a tinker could have sailed with the vessel...The irruptions of the Sea Peoples in the Levant at the close of Late



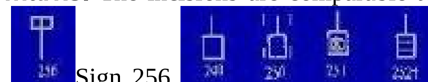
Cypriot IIC, that is, the thirteenth century BC, put an end to the trading and cultural interchanges between the two countries of the region, and transformed the material civilization of Cyprus..." (R.S.Merrillees, Archaeological Symposium: Early metallurgy in Cyprus 4000-500 BC; Historical Summary, in: James D. Muhly, Robert Maddin and Vassos Karageorghis, eds., 1982, *Early Metallurgy in Cyprus, 4000-500 B*C, Larnaca, Cyprus, Pierides Foundation, pp. 375-376).

Seal-inscription; the antelope with its head turned back is associated with a sharp-edged single-bladed axe (*pelekhys*) (Semant. Tamil: *pil.a* = to split with an axe); in Harappan script, two animals are depicted with their heads turned back: the antelope and the tiger. The lexeme related to 'the looking back' and the antelope glyph will be related to metalsmith in Meluhha as the decoding process unravels. (Source: *Scripta Minoa*; After P 22b in Fig. 5: F. Melian Stawell, 1931, A Clue to the Cretan Scripts, London, G. Bell and Sons Ltd.)

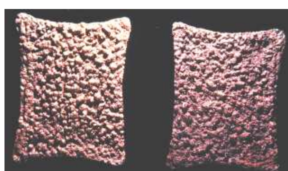


Cyriot copper, in the shape of so-called oxhide ingots (representing one talent, or about 29 kg of copper), were shipped across the Mediterranean.



Copper plano-convex or 'bun' ingots with incised marks. The incisions are comparable to the signs: Sign 256 

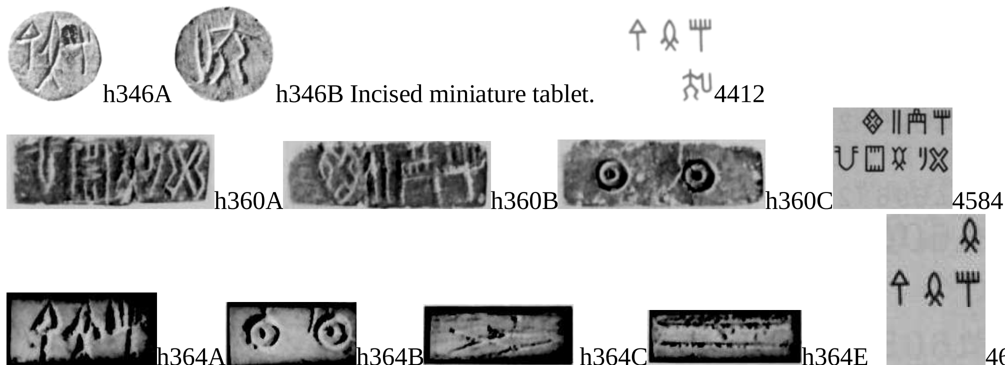
Signs 249, 250, 251 and 252; the ligature is comparable to the short-tail shown on an antelope glyph and also ligatured to many signs, for e.g. Sign 91: 



A pair of small 'oxhide' ingots of a shape representing an earlier type (Buchholtz's type Ib). A total of five were found, of which two pairs were cast in the same mold. [After figures from: Bronze Age Shipwreck Excavation at Uluburun] http://ina.tamu.edu/ub-ingots.htm

Controversy has surrounded the identification of the home port of the ship wrecked off Cape Gelidonya, Turkey. In an attempt to contribute further information pertinent to the solution of this problem, samples for metallurgical study were taken from eight of the copper ingots that were carried on the ship: four oxhide-shaped, two plano-convex, and two slab-shaped. Analysis of these samples shows that, with a single exception, the structure and composition of the ingots are little different from ingots found in Cyprus, Crete, Greece, and Sardinia. The inferences to be drawn from the metallurgical research are 1) that the ingots represented typical items of international trade and 2) that the home port of the ship and lading port of the ingots cannot be determined since the ship and crew were operating in the international sphere. It may also be surmised that at least a part of the Bronze Age trade was in the hands of private entrepreneurs. [James D. Muhly, Tamara Stech Wheeler and Robert Maddin The Cape Gelidonya Shipwreck and the Bronze Age Metals Trade in the Eastern Mediterranean *Journal of Field Archaeology* 4 (1977) 353—362].

Harrow glyph


h346A h346B Incised miniature tablet. 4412

h360A h360B h360C 4584

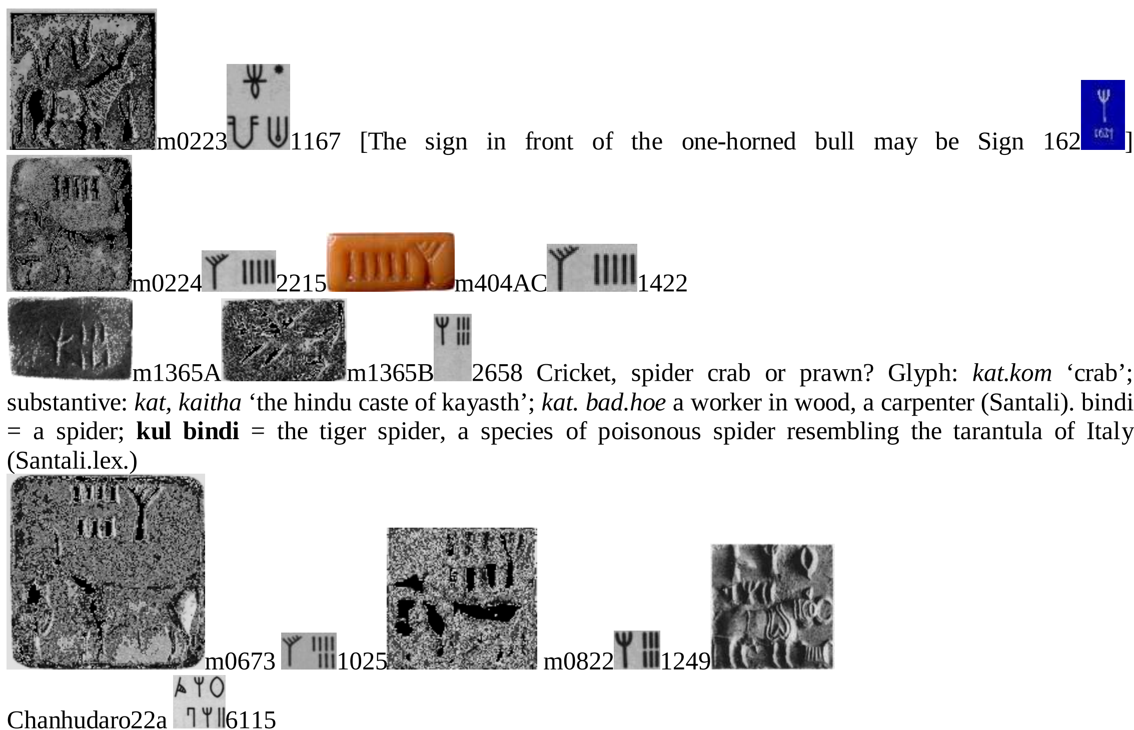
h364A h364B h364C h364E 4635

Thus, Sign 348 may connote: *phot.* ‘sprout’ (substantive: copper ingot) + *ad.ar* ‘harrow’ (substantive: *aduru* ‘native metal’)


m0182 2154 m0293 Gharial (or lizard) 1360

{The duplication of the ‘harrow’ glyph may connote: *ad.ar* ‘harrow’ + *bar* ‘two’ (substantive: *aduru* ‘native metal’ + *bara* ‘oven, furnace’]

The following epigraphs show the use of glyph: **tagara** = *taberna montana*; rebus: *tagara* ‘tin’; alternative: *phut.ia* (sprout); substantive: copper ingots.


m0223 1167 [The sign in front of the one-horned bull may be Sign 162]

m0224 2215 m404AC 1422

m1365A m1365B 2658 Cricket, spider crab or prawn? Glyph: *kat.kom* ‘crab’; substantive: *kat, kaitha* ‘the hindu caste of kayasth’; *kat. bad.hoe* a worker in wood, a carpenter (Santali). bindi = a spider; **kul bindi** = the tiger spider, a species of poisonous spider resembling the tarantula of Italy (Santali.lex.)

m0673 1025 m0822 1249

Chanhudaro22a 6115

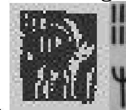
Impression of a cylinder seal. Chlorite or steatite. 1.8 cm. High. L. 1983.125.4 The incision is in drilled style. A **caprid** faces right; to its left and floating in the field is a small, unidentified creature followed by a **boar**,

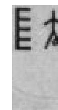
placed along the vertical axis. The undulating lines above and below the boar are probably **snakes**. The pictographs also occur on SSVC inscribed objects.[After Fig. 27 in: Holly Pittman, 1984, *Art of the Bronze Age: Southeastern Iran, Western Central Asia, and the Indus Valley*, New York, The Metropolitan Museum of Art, p. 58].

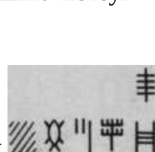


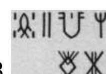


Modern Impression of a stamped seal: hunters and goats, rectangular pen (?), early 2nd millennium B.C. Gulf region (ancient Dilmun) Steatite or chlorite; H. 1/2 in. (1.27 cm) “The earliest stone seals of the Gulf region were made of steatite hardened by firing and often glazed after they were carved. The impression of the hemispherical stamp seal depicted here shows a male figure in the upper field who grasps a caprid by the neck. To the left, a male figure holds a staff. Below, a recumbent caprid reclines beneath a gridded rectangle. A snake and perhaps a monkey(?) are also depicted in the field. The hemispherical form and round sealing face are typical of seals of the Gulf region, as are the incised lines and concentric circles that decorate the back of this seal. Similar seals have been found in Mesopotamia, Iran, and the Indus Valley, areas with which Gulf merchants traded and with whom they shared a common visual vocabulary.” http://www.metmuseum.org/toah/ho/03/wap/hod_1987.96.22.htm

The caprid may connote: *mlekh* ‘goat’, *mer.go* ‘antelope (with horns turned backwards)’; rebus: *meruku* ‘glitter, silver’; hence, the glyph may connote silver smith. The figure of a person holding a staff is reminiscent of the sign of Sarasvati Civilization: *me~d* ‘body’. 2565 Pict-37 Goat-antelope with a short tail

h286A h286B 4429 Incised miniature tablet Goat-antelope with a short tailm0418acylm0419acylm0419dcylm0419fcyl

h349Ah349Bh701Ath701Bt5329

Lothal048 7025Chanhudaro Seal obverse and reverse. The oval sign of this Jhukar culture seal is comparable to other inscriptions. Fig. 1 and 1a of Plate L. After Mackay, 1943.

Glyph: *me~t* ‘eye’ (Santali)
Glyph: *me_d.i* glomerous fig tree, *ficus racemosa* (Ka.); *ficus glomerata* (Te.); me_r.i id. (Ko.)(DEDR 5090). [Thus *lo* ‘iron’ + *me_d.i* ‘iron implement’ may be both phonetic determinants reinforcing the substantive (‘iron’) indicated by the glyph: ‘leaf’.]

khapar = tin, a metal once used largely to make ornaments, but now out of use (Santali) Metath. kharva? 2357.

A treasure: **kharva, kharba** one of the nine treasures of Kube_ra (Skt.lex.) kharb one hundred arbs, equal to 100 billion (Punjabi.lex.) kharva = baked pottery (Skt.lex.) karavi, karu, garu a mould (Tu.lex.) karuvi instrument, tool, implement (Cilap. 16,186) (Ta.); id. (Ma.); means, materials, as for a sacrifice (Kur-al.. 421); armour, coat of mail; saddle; assembly, collection, flock, group (Tol. Col. 354, Urai); karuvi-p-put.t.il scabbard, sheath; karuvippai instrument-case, barber's bag (Ta.lex.)

khap = a notch, a hollow into which another piece of wood is fixed, a mortise; khapur kha~yu~k = a pit, a pitfall (Santali) 2082.Prong of a trident; groove: Image: notch; rung of a ladder: khop rung of a ladder (orig. 'notch in a plank or trunk used as a ladder')(A.); dint (M.); khupiya_ notch to place the foot on (A.); khopani pressing the toes in to prevent slipping (A.)(CDIAL 3937). 2084.Image: pair; separation:

2079.Waterlift: kavalai a kind of waterlift (Ta.); kapile (Te.); kapali (Ka.); kappi (Ma.); kapi (Tu.)
kabba_re = a heron (Ka.lex.)

kapar = head, skull, fate, luck; khapri = the skull; adh khapri = one half of the head or skull (Santali) kapa_laka smal bowl (Pali).

ka~rwas a small earthenware vessel in which a little dhan is placed and sent with a bride to her new home. The pot is ornamented with figures drawn in white; korpa to gather together by little, perquisites received by yearly servants when harvesting crops, also by daughters previous to marriage; kara a large iron pan used to boil sugar cane juice in (Santali.lex.)

cf. **khappara** shard, begging bowl (Pkt.)(CDIAL 3831). karpara an iron sauce-pan, a frying-pan; a pot or vessel in general (as of a potter); a potsherd, piece of a broken jar as in ghat.akarpara; the skull; a kind of weapon (Skt.lex.)

khapar ghara = a tiled house; **khapra** = a roofing tile, a large piece of broken earthenware; khapra pit.ha = bread made from flour and water and baked in a piece of broken earthenware; khaprol = roofing tiles, tiled; khaprol or.ak = a tiled house (Santali)

Buffalo: **kavari** < gavala buffalo (Kalla_. 53,30)(Ta.lex.) gavala wild buffalo (Pkt.Skt.); gauri ga_i (N.)(CDIAL 4096). Buffalo's horn: gavala a buffalo's horn (Ka.Skt.lex.)

kavari = chowrie (Ta.); kavaram = hair plait (Ma.); kavari id.; woman with fine hair; yak (Ma.); kabari tufted hair of females (Tu.); kavara, kabara, kavari_, kabari_ braid of hair (Skt.)(DEDR 1327). **kabri_** = a braid of hair (G.lex.) **kabari, kavari** a braid or fillet of hair; a knot of braided hair; kabari-yagra the point of a braided hair (Ka.lex.) kapardin having braided hair (RV.)(CDIAL 2743)

kavar tine, as of a trident (Ta.); kava (Te.Tu.Ma.); kaval (Ka.); groove or a kind of mortise on the top of a gate or door-post to receive a beam; kavat.u (Ta.)(Ta.lex.)
kavat.u separation, division (Malaipat.u. 34)(Ta.lex.)

kava pair, couple (Te.); kavalu twins (Te.); **kapli** a pair of branches, horns or antlers (Malt.)(DEDR 1325).

kavari = chariot (Katirve_l Pil.l.ai Ta. lex.)

Long-legged person

Glyph: *d.han:gar, d.a_n:gra_* = ox, bull
Glyph: *kan:kar., kan:kur*. 'very tall and thin, large hands and feet' (Santali) cf. *kan:gar* 'furnace'
Glyph: *d.han:ga* 'tall, long shanked' (Santali) *t.an:ka* leg (Pkt.*); t.an:ga* (S.); *t.a_n:ka* leg, thigh (Or.); *t.a_n:ku* thigh, buttock (Or.)(CDIAL 5428).

t.an:ka spade, hoe, chisel (R.); *t.an:ga* sword, spade (Skt.); *t.an:k*a stone mason's chisel (Pali); *t.am.ka* stone-chisel, sword (Pkt.); t.ho_ axe (Wot.); *t.hon:* battle-axe (Bshk.); *tanger* axe (Tor.); t.ho_n:gi (Phal.); *t.onguru* a kind of hoe (k.); *t.a_~n:gi* adze (N.); *t.a_~ki* chisel (H.); *t.a~_k* pen nib (G..H.); *t.a_ki_* chisel (H.); *t.a_n:gi* stone chisel (A.); *t.a_n:g, t.a_n:gi* spade, axe (B.); *t.a_n:gi* battle-axe (Or.); *t.a~_n:ga_* adze (Bi.); *t.a_n:i* axe (Bhoj.); *t.a_~gi_* hatchet (H.)(CDIAL 5427). *t.an:kita-man~ca* a stone (i.e. chiseled) platform (Pali); *t.a~_kvu~* to chisel (G.); *t.a~_kn.e~* (M.)(CDIAL 5433) *t.an:kas'a_la_* mint (Skt.)(CDIAl 5434). *taks.an.i* = a carpenter's axe; *taks.akud.u* = a carpenter; name of one of the kings of the *na_ga* or serpents of pa_ta_l.a (Te.lex.) cf. *dhan:gla dhan:gli* 'to cut or dig quickly or hastily' (Santali)

Serpent, Tail of serpent

Substantive: *kal, kol* 'a machine, any contrivance, a trap, the spring of a pigeon trap (Santali)
Glyph: *kal* 'a snake' (Santali)
Substantive: *mun.d.a* 'a Kolarian tribe inhabiting the Chota Nagpur division' (Santali)
Glyph: *mon.d*. 'tail of serpent' (Santali)
Glyph: *mun.d.ha, mun.d.hak* 'stump of tree, a log' (Santali)

Glyph: *tagar*. 'a trough' (Santali) Glyph: *d.a_n:gra_* = wooden trough or manger sufficient to feed one animal; *tagar.re surti ar cunko sipia* = they mix surti and lime in a trough (Santali.lex.) *taga_rum* [Pers. tagarih] a bricklayer's trough (G.lex.) [Is this a representation of a trough shown in front of the short-horned bull and other animals on many seals? The possibility is enhanced because the shrub also appears in front of a short-horned bull.]

Glyph: *takar* sheep, ram, goat, male of certain other animals (*porutakar ta_kkar-ku-p- pe_run takaittu* : Kural.486); male elephant; male shark (Ta.lex.) (*ya_l.i*, elephant, shark)(Ta.); takaran huge, powerful as a man, bear, etc. (Ma.); *tagar, t.agaru, t.agara, t.egaru* ram (Ka.) *tagaru, t.agaru* id. (Tu.); *tagaramu, tagaru* id. (Te.); *tagar* id. (M.)(DEDR 3000). *tan:gad.i_, tagara* a ram (M.H.); *tagade_ra* having a ram for his vehicle: fire; *tagarven.agisu* to cause rams to fight (Ka.lex.)

Substantive: *tibira* 'merchant' (Akkadian) *tamba* 'copper' (Santali)
Glyph: *tebr.a, tebor., tibr.a* 'thrice, three times' (Santali) *tagad.o* = [Skt. *trika* a group of three] the figure three (3)(G.lex.) [A ligature of threee tigers: tebr.a 'three', kol 'metal'; rebus: **tibira** 'merchant' **kol** 'metal']

Glyph: *taber* 'face downwards, upper side down'; *taber akanae*, 'he is lying on his face, or stomach' (Santali)
Glyph: *tapor* 'a hod, cover of a cart'

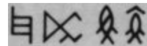
Gypsy: *kutru, kutu* 'a dog, a puppy'; *kutu kutu* 'a call to a puppy' (Santali)

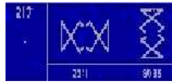
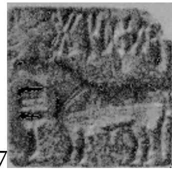
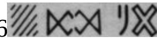
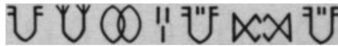
File (for blacksmiths): *ka_karn.i_*

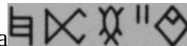
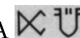
There are variations in the 'fish' glyph. They may connote variety of possessions:

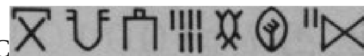
kakr.a 'fish'; *ka_karn.i_* 'file for blacksmiths'
ir-avu, ir-a_, ir-a_l prawn, shrimp (Ta.); ir-a_vu prawn, shrimp (Ma.)(DEDR 517). *ira_vuka, ra_kuka* to file; *aram* file (Ma.); *ira_vu* to file, polish; *aram* file (Ta.)(DEDR 228).

Glyph: *ir-avu*, *ir-a_l* honeycomb (Ta.)(DEDR 518).

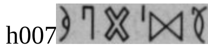
Lothal051a 7057 Pict-127: Upper register: a large device with a number of small circles in three rows with another row of short vertical lines below; the device is horned. A seed-drill?

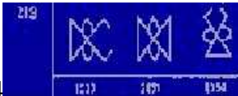
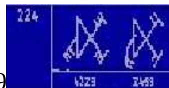
V217m01262311 Kalibangan043 8039 Pict-59:Composite motif

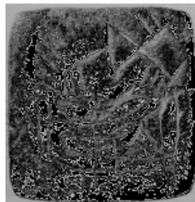
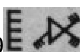
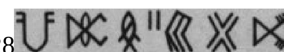
m0042a1096 Kalibangan091A 8212 [Pottery]

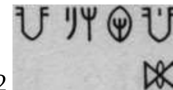
m393AC2120 

m0119a2018

h0074008

V214V219V224V228V229

h09942232469m06281033

 m11342651 Surkotada 2 9092

Glyph: *kapci* scissors, to clip with scissors; up kapci gidikataeme cut off his hair (Santali)

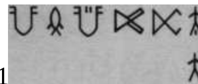
Substantive: *kapi* a battle-axe (Santali)

Types of battle axe: *bhalua kapi* [*bhalua*: a battle axe, so named from its resemblances to a swallow with outstretched wings; *bhalwa* 'used by blacksmiths when punching holes in iron'; the punch passes through this

iron into a hole in the *bhalwa*] ; *hoekok kapi*; *khupa kapi*; *kherco kapi* (small) [lit. *kherco* 'chipped, having a piece out of the rim']; *ayar kapi* [lit. *ayar* 'oblique']; *hado kapi* [lit. *hado* 'bony and big']; *gudia kapi* (broad); *sikria kapi*; *potam cupi ten:goc* [lit. tail of pigeon axe](Santali)

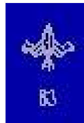
Brazier's pincers, artisan's workshop

kut.t.a-k-kur-at.u a kind of brazier's pincers; cf. **kut.t.am** smallness, littleness (Ta.lex.) **Image: vice**: **khod.** vice (M.); **khod.a_** cramp (M.); **khod.um.** (G.); **khom.d.a_** (B.); **khora** paralytic (Si.); **khod.** vice (G.); **khori_** vice (H.); **khod.** malediction, disease (H.); **khod.a** (Pkt.); **khod.o ... khajah-** (OM.); **khod.i- (dos.a-)** (Ap.); **khod.a khora** (Skt.)(Bloch, p. 324). cf. **kot.ukki** vice (Ta.lex.) **kot.ir-u** pincers (Ta.); **kot.il** tongs (Ma.); **kor.** hook of tongs (Ko.); **kut.ilika_-** smith's tongs (Skt.)(DEDR 2052). **kur-at.u**, pincers; **kot.ir-u** cheek, jaw; marks of elephant's must (Ta.lex.); **kot.icci** jaws (Ta.); **kot.uppu** cheek, jaw (Ta.); **kot.ia** temples (Ma.); **kod.eji** the inside of the cheeks (Tu.); **ku_dr.u_, ku_d.ru** jaw (of human beings)(Kuwi)(DEDR 2051). [Note the second and third glyphs of a pair of 'tongs' on text 2420.]

m0304AC Pict-812420 Animals surrounding represent a variety of furnaces.

Substantive: **kod.** 'artisan's workshop'.

Bat

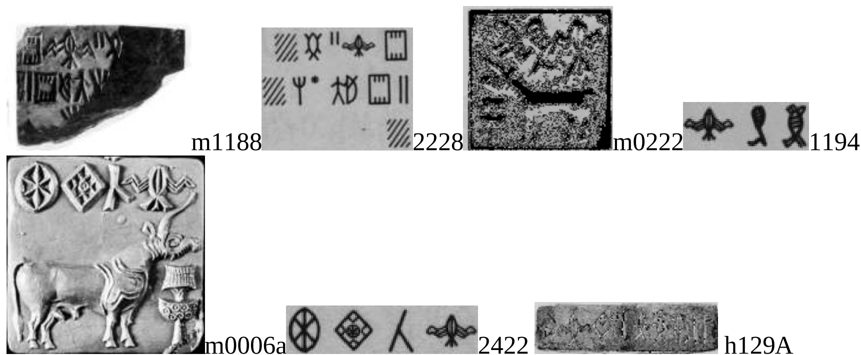


s'e~_s.t.ri = bat
bardu~r.u~c = bat (Santali)
Bat, flying-fox = vagguli (Pali), ba_vali, ba_voli (Tu.), va_til (Ma), vavva_l (Ta.) Bat = va_lgu.da (Skt.)

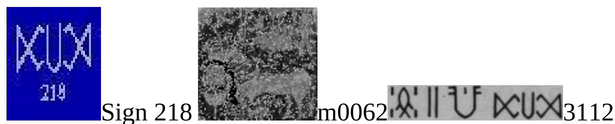
Rebus: **bha~wa~r, bha~ora** = a boring instrument resembling a brace (Santali) cf. bhramara turning (Skt.lex.)

bawat.t.a, bhawat.a, bharwat.t.a = an armlet with an amulet; the eyebrows (P.lex.)

ba_vat.o = a kind of corn (G.lex.)

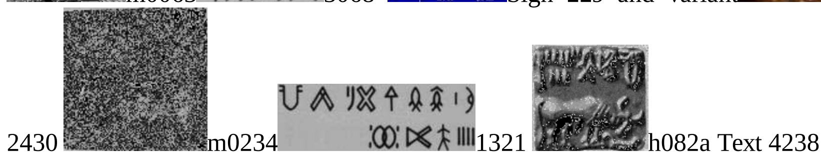

m1188 2228 m0222 1194 m0006a 2422 h129A

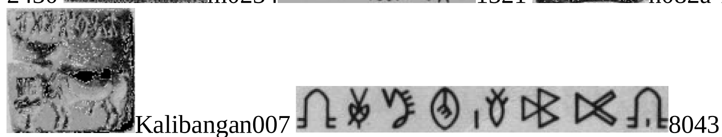
kammat.a, 'coiner'; **kod.a**, 'workshop'

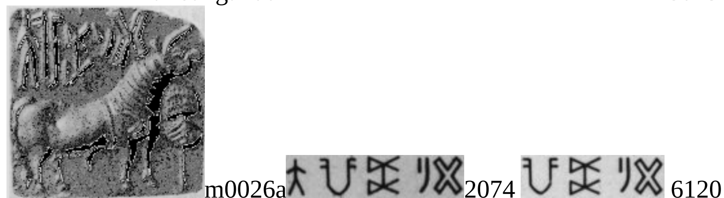

Sign 218 m0062 3112

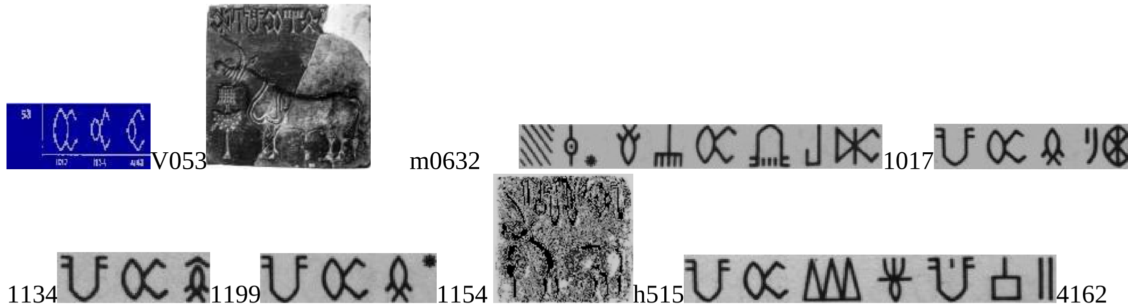
Ligatures of Sign 218: **kod.a + me~t me~t** nepel = v. see face to face (Santali); rebus: med. 'iron'; (alternative: **med.hi**, 'writer, merchant's clerk'); **kammat.a**, 'coiner'.


m0063 3068 Sign 229 and variant m1186A 2430


m0234 1321 h082a Text 4238


Kalibangan007 8043


m0026a 2074 6120



*vaka_ri_*, *vaka_riyo* a ware-house keeper, a merchant; *vaka_r* [Hem. Des. *vakkha_ri-am* = Skt. ratigr.ham a brothel] a godown; a warehouse; a store-room (G.) *baka_la* [Arabic bakka_l a greengrocer] a petty shopkeeper; a va_nia (G.)

bagalo an Arabian merchant vessel (G.)

Alternative: *bake* forceps (Malt.); *bakka_* claws of a crab, forceps, shears (Kur.)(DEDR 3814). *bakr.ali*, *bark, brak* to claw (Kui); *bagaru* to scratch with claws (Ka.)(DEDR 5202). (Glyph: claws; substantive: forceps).

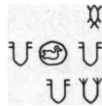
*ban:ka_* crooked, bent, curved (Kur.); *van:ka* crooked, bend (of river)(Pali.Pkt.Skt.); *vang* to bend (Kol.); *va~_ka* crooked (Te.); *va_n:ku* bending (Ta.)(CDIAL 11191; DEDR 5335).

baktale, *bagutale* parting of the hair by combing, combing the hair into curls, crown of the head, chaplet (Kod.)(DEDR 5202).

va_gh [Dh. Des. *vaggho* fr. Skt. *vya_ghra*] a tiger; a bold man (G.)

Duck


Mohenjodaro MIC, Pl. CVI,93


1093

Substantive: *ta_ra_m* a copper coin, ½ pice or ½ fanam (Ma.); *ta_ra* a copper coin of two ka_su (Ka.); two pie (Tu.)(DEDR 3168).
Glyph: *ta_ra_* duck, heron (Ta.); *ta_r.a_vu* duck (Ma.)(DEDR 3169).

karkara = a hammer (Skt.lex.)
karkara = a sort of duck or goose (Ka.lex.)

What does the 'swan' in a circle signify in the script of the Bharatiya Civilization?

It occurs just once in the inscriptions.

The lexemes for 'swan' are many; a few of them are presented here with a list of possible homonyms. A remarkable semantic cluster emerges. The homonyms for lexemes such as nemi, cakka, ta_ra_, pariti are relatable to the 'wheel' of a vehicle. Another semantic cluster: plava = a duck is homonymous with a float or boat.

Tamil lexemes (which are concordant with Sanskrit lexemes) attest a compound: cakra-va_l.am or just, va_l.am. The association of 'cakra' with the apparent movement of the Sun in Indian literature is well-known. R.gveda su_kta (1.164) elaborates on the 'wheel' imagery while expounding on cosmic 'time'.

The homonym (of -va_l.am in cakra-va_l.am) is va_l. = a sword! (which is perhaps what this pictograph is intended to convey). This hypothesis has to be confirmed further, with reference to the entire inscription within which this Sign 82 is sequenced. If other pictographs in the inscription constitute a 'weapons' set, the interpretation of the Sign as 'sword' will hold; if they constitute a set of 'ratha' or battle car parts, the Sign may be read as nemi or pariti (tire of a solid disc wheel or a spoked-wheel).

As a ligature, the pictograph may connote: circle + swan, i.e. cakra + va_l.am; in which case, the homonyms may be cakra + va_l. = discuss + sword.

At this stage, it is apposite to point to the 'association' of the pictograph with the 'ratha'; as further progress is made in deciphering other pictorials such as 'six-spoked wheel' (single and duplicate) and -- six-spoked wheel followed by '' -- (perhaps a short-hand for duplicate or double or two-wheeled), it may be possible to pin-down the bon mot which matches the pictograph so vividly depicted in Sign 82: either a sword or a 'ratha' with 'pavi' javelin-like paridhi which is also depicted on a solid disc wheel model in Mesopotamian civilization.

7367.Image: two: bar, barea two; bar gel twenty; bar isi forty (Santali.lex.) vira, ira two (Ka.); -vir an affix for the plural, masculine and femine, e.g. tande-vir, ta_yvir, sosevir fathers, mothers, daughters-in-law (Ka.lex.) i_r = two (Tamil.lex.)

i_rva_l. = sword to cut trees and wood; i_rvu = to cut, to cleave, to hew (Tamil.lex.)



Sign 82

Some alternative homonyms to match the pictograph (? a ligature of circle + swan):

khera_ = large duck (Jat.ki_); ker.a = shield; geri = fish-hook

ta_ra_ = duck; ta_rai = discus weapon (Ta.); ta_ru = the arrows of weavers which hold the yarn (Ma.)

8056.Image: duck: plava a kind of duck (Skt.Ka.)(Ka.lex.) cf. plu float (Skt.)(CDIAL 9025).Image:

4755.Image: duck: ta_ra_ duck (Pata_rtta. 890)(Ta.lex.) ta_r-a_vu duck (Ma.)(DEDR 3169). tarat. a kind of duck (Skt.)(Skt.lex.) cf. ta.r, t.a_reng (hen) cackles (Kol.); tarp- to cackle (Pa.)(DEDR 3173). a_ri duck (Dm.Kal.); a_ri_ (Gaw.); al.i (Kho.); e_r (Bshk.); a_r (Tor.); he_r.i_ (Phal.); a_r.i_ (S.); a_r.i turdus ginginianus (B.); a web-footed bird (Or.); a_r. turdus ginginianus (H.); a_d.l.i_ (M.); a_d.i_ (M.); a_reli_ duck (Gaw.); a_ti an aquatic bird (RV.); a_t.a a partic. kind of bird (Pali); a_d.i (Pkt.); a_r.i duck (Wg.); warg-a_r.i_ lit. 'water-duck'(Ash.)(CDIAL 1127). tarad a kind of duck (Skt.lex.) cf. taran:ga wave (R.Pali); taram.ga (Pkt.); taran:g (P.); taran. brook, current, stream of water (Ku.); taran:ga, tagara wave (Si.)(CIDAL 5699).
4349.Image: goose: ta_d.igya the barred-headed goose, anser indicus (Ka.lex.)

3057.Image: goose: cakkaram ruddy goose, anas cascara; cakra-va_ka-p-pul. (Ta.lex.); kal.akam kala-hamsa, hamsa, swan; lime mortar; sheaf of paddy (Ta.lex.) cakrava_ka the ruddy goose anas casarca (RV.); cakkava_ka (Pali); cakava_e (As'.); cakkava_ya, cakka_a (Pkt.); c.a_kav the ruddy sheldrake casarca (K.);

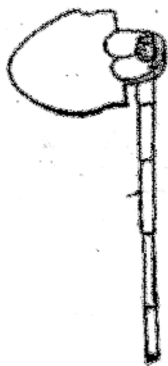
cakuo a. casarca (K.); cakva_, cakvi_ (P.); c.ekkro~, pl. c.ekkru (WPah.); cakhewa_ (N.); sakowa_, sa_kai (A.); caka_ (B.); cakua_ (Or.); cakui (Or.); cakawa_, cakewa_ (Mth.); cakawa_ (Aw.); cakai_ (Aw.H.); cakwa_ (H.); cakvo, cakvi_ (G.); c.akva_, c.akvi_ (M.); sakva_ (Si.)(CDIAL 4551). cf. cako_ra the red partridge, perdix rufa (MBh.Pali); cako_raka (Skt.); cker (Wkh.); cago_ra, cao_ra, cao_raga (Pkt.); siyura_, sivura_ (Si.); cakoru (S.); cakor (P.); cakro, ca_kura_, ca_kuri_ (WPah.); ca_khoro (Garh.); ca_khur.o (Ku.); ca_khuro (N.); cakor (B.Mth.H.G.M.); can:ko_ra (Pali)(CDIAL 4536). sa~k a goose (Santali.lex.)

86.Image: swan: a_s, a_sa_ duck (Kon.lex.) ajam < ham.sa swan (Tiva_.); ham.sa mantra, ajapa_mantiram (Ka_cippu. Tiruve_ka. 28)(Ta.lex.) ham.sa goose (RV.); ham.saka (Skt.); ham.sa goose (Pali.As'.Pkt.); hanza (Sh.); unzu, anzi (K.); haju (S.); ha~_s duck (N.); ha~_h duck, goose (A.)

Substantive: *hako* ‘an axe’ (Mundari)

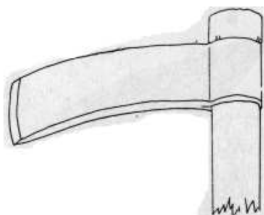
Glyph: *bhed.a hako, hako* ‘a species of fish’ (Santali)

hake kud.lam (Has.) **hake-kud.i** (Nag.) = collective noun for all implements for work in the fields and jungles; hakekud.laman = adj. Possessed of such implements; hakekud.lamanae = he has all the implements necessary for field and juncle work (Mundari.lex.)



kudlam, Pl. XIII, 7, *Encyclopaedia Mundarica.*

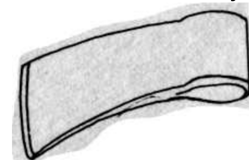
kud.lam, kulam (Has.) synonym of **kud.i** (Nag.) = a hoe either imported (cala_ni kud.lam) or forged by the village blacksmith (**bar.aekud.lam**). The latter, kud.lam is shaped as shown in Pl. XIII,7, is from 10 to 11” at its broadest part. Down to two thirds of its length it is ¼” thick and then thins down. The handle-ring is made separately and welded to the blade. The two wings joining the ring to the blade are about 4” long and 4 ½” broad. The handle, whether of bamboo or other wood (generally, of a hesel sapling), is nearly 3’ long. The Mundas have no spades, no shovels, and yet in the cultivation of rice they have often to throw quantities of earth from one spot to another, either to level the field or to make or repair its ridges. As it must be done with the hoe, it is no wonder that they like a broad-bladed instrument. (Mundari.lex.)



hake, Pl. XX, 7 *Encyclopaedia Mundarica.*

hake (cf. English to hack; Dutch hakken) = a middle-size for cutting wood, the larger one being called har.amhake, and the smaller one **kond.e**, in contrast to kapi, tabala, pharsi and gan.das, which are battle axes. (Mundari.lx.)

kond.e, Pl. XX,6 *Encyclopaedia Mundarica.*



Rebus, homonym: **kond.e** kose = to turn away the face sullenly; kon.d.e kose bar.aedae = she turns her head to one side (Santali.lex.) **kon.d.e** = crooked, bent; kon.d.et, kon.d.et kon.d.et = bent, twisted, off the straight (Santali.lex.) [Note the orthography of an antelope or a tiger with its head turned back].

A characteristic feature of orthography is duplication. See, for example Rehmandheri seal with a pair of scorpions and a pair of antelopes.

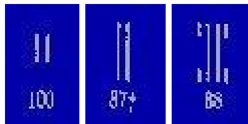
For example, if two spoked-wheels are shown, they may be explained as *bar + sal* (furnace, oven, cf. Hindi *bharsa_ri_*).

Alternatively, the pair of ‘wheel’ glyphs could connote *dokhra gad.h* (metallurgists’ fort).

Similarly, if the glyphs show: gaur’s horn + tiger’s mane + bracelets + antelope + sheaf + platform, the rebus words are: *cu_l.a* + *cu_l.a* + *bindi* + *bhin.d.a* + *pin.d.i.* Hence the underlying substantive is: *sal* + *cu_l.a* + *bhin.d.a* (meanings: workshop, furnace, iron smelting furnace) Alternatively, the ‘wheel’ glyph could connote (*dohra*) *gad.h* (metallurgists’ fort)

Two scorpions: *kamar + bar* (*kamar* 'blacksmith'; *kamar kidin* 'a small species of scorpion'), i.e. blacksmith + oven.

Glyph: *boda* ‘a ram’ (Santali)
Glyph: *bod.a bin:* ‘a brown rock-snake’ (Santali)
Glyph: *boar.i* ‘variety of the rice plant’ (Santali)
Glyph: *bar, barea* ‘two’ (Santali)
Glyph: *bare* steep slope (Ka.Kod.Tu.); *bare* precipice (Ka.); *varai* mountain, peak, slope of hill (Ta.)(DEDR 5274)
Glyph: *varai a_t.u* ibex, *hemitnagus hylocrius,* jungle sheep (Ta.); *par o.r.* Nilgiri ibex (To.)(DEDR 5274)

||  *got.an:, got.ec, got.en* used with numerals, also with 2,3, and 4, when reduplicated; *mo~r.e~ got.ec hor.ko tabekana* there were five people; *babar got.an:* two each; *pepe gor.an:* three each; *popon got.an:* four each; *gel got.en do bape saphalena*? *are got.ec doko okaena*? Were there not ten of you cleansed? Where are the nine?
Substantive: *kod.* place where artisans work (G.)*; got.h, got.* place where cattle are collected at mid-day (Santali)

The glyph of duplication *bar got.an*: may be rebus for: *bhar* ‘oven’ + *got.* ‘workplace of artisans’. This may also explain the animals depicted on a single of Indian file. *gotgoto* in single or Indian file: place where artisans work. Or, in a group: *got.h* place of assembly.(of workers)

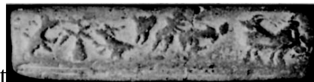
> [**bhar** an oven; *bharan* to spread or bring out from a kiln (P.lex.) *bhaha_ra_, bhaha_ri_* little earthen furnace (P.)(CDIAL 9482). *bari_* ‘blacksmith, artisan (Ashmolean)(CDIAL 9464). *bha_r* grain-parcher’s fireplace (Bi.); *bharsa_ri_* furnace, oven (Hindi)(CDIAL 9685).]
>
> **kin** = two (Santali); **gina** = metal vessel (Kond.a)

Thus, many animal glyphs have to explained as artisans or tools of trade of the professions available in a workshop. Thus, the possessions or occupancy of the artisans are depicted on many inscribed objects, seals and tablets alike, copper plates and bangles alike.

Lizard *d.okke*; *dhokra* ‘metal worker’ [Depited on the top register and in the center surrounded by other animals or glyphs] *hako* ‘fish’, *hako* ‘axe’
Elephant trunk ‘ibha sun.d.’; ib ‘iron’; sund ‘pit, furnace’
Boar, rhinoceros ‘*gan.d.a garur.*’; *kan.d.* ‘furnace’; *garur.* ‘mould’
karu mould; karukku engraving, carving, embossed work (Ta.); *karu* bas-relief (Ka.); *karu, garu, karavi* a mould (Tu.); *garra* form, mint (Kuwi)(DEDR 1280).
Tiger ‘*kul*’; *kol* ‘smithy’; Tiger wry, to carry the head sideways *kokr.e kol*; or *gote kol*; rebus: *kod.* place where artisans work, *kol* ‘smithy’; jumping tiger *kamsa kol* ‘bronze smithy.

> **kol** metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

kokr.e to carry the head sideways; *kokr.e* wry; Rebus: *kakr.a* 'stone' kol 'furnace' (iron ore furnace); *khokrao* to engrave
gote, gotle wry, oblique (Santali)
Brahmani bull *adar d.an:gra*; *aduru* 'native metal', *d.han:gar* 'blacksmith'
Bull, bull in pairs: *dhun:gra dhun:gri* 'to quarrel fiercely with each other'; *d.an:gar* bull
Heifer, young bull: *ko_d.e*; *kod.* place where artisans work; *go~r.e~* pannier; got. assembly place; *kwi.r.* 'horn' (To.); *ko_d.u* id. (Ka.Tu.*) ko.t.* castle (Ko.)
Buffalo (wide horns): *d.abe, d.abea* wide horns; *d.ab, d.himba, d.hompo* 'lump (ingot?)' (Santali); *kod.ru* buffalo; *kod.* place where artisans work; *kol* smithy; *d.ha_ba_* workplace (P.) *d.i_ba* fire to spark out (Mand.); *d.iba* fire to crackle (Pe.)(DEDR 2961). [Glyph; *d.heba, d.hiba* short of stature; *d.eble* small; d.ebe debe short; *d.ebe d.ebe* a 'rattat' played on the drum at a hunt (Santali) cf. short-statured one-horned young bull or heifer. *d.abo* a cattle-pound (G.) *dop dap in (id)* to make bumping noise of sexual intercourse (Ko.)(DEDR 3069).]

m0489Atm0489Btm 0489Ct

Glyphs on m0489A: elephant trunk, boar/rhinoceros, tiger, tiger face turned, lizard with fish: furnace types

ibha sund, gan.d.a garur., kol, kokr.e kol, d.okke: rebus, *ib* 'iron', *sund* furnace; *kan.d.* 'furnace', *garad.a* 'engrave'; *gara_d., gara_d.o* a ditch, a pit (furnace)(G.); *kol* 'furnace, smithy'; *kokr.e kol* 'furnace' 'engrave'; *kakr.a hako* : *kan:gra* 'portable furnace', *hako* 'axe'

Glyphs on m0489C: young bull, antelope, bullock, brahmani bull, lizard with fish: Possessions and occupancy

ko_d.e, med.h, d.angra, adar d.an:gra, d.okke hako: rebus: *kod.* place where artisans work; *mer.h* merchant's assistant; *d.han:gra* blacksmith; *aduru d.han:gar* native metal blacksmith; *dok* possession and occupancy, *hako* axe

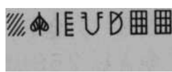
Glyphs on m-0489B: metal type(s)

Glyph: *tagalu, tagilu, tagulu* to have sexual intercourse with (Ka.)(DEDR 3004). *daniyu* to copulate (Te.); *danivu* copulation (Te.)(DEDR 3148).
Glyph:

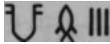
sundu coition (Ka.)(DEDR 3291).
sund pit furnace (Santali)

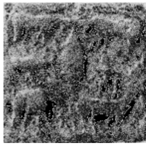
Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)
Substantive: *sal* workshop (Santali)

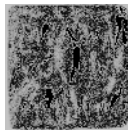
m1405Bt Pict-48 A tiger and a rhinoceros in file 2841

1626 Pict-47 Row of uncertain animals in file.

Lothal217ALothal217B

m0294 One-horned bull?; elephant 1376

m0439t m440AC A person (monkey?) shown together with five animals (two bulls, boar, elephant, antelope) surrounding a lizard

m1393t m1394t

Rhinoceros (boar)

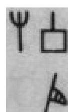
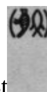
Substantive: *bad.hi* 'a caste who work both in iron and wood' (Santali)

Glyph: *badhia* 'castrated boar'; *bhator* 'boar'(Santali) *pan.d., pan.d.u* hog, pig (Ga.); *pandi* (Kod.Te.)(DEDR 4039).

Substantive: pit? *gan.d.i* hole, orifice (Te.); *kan.d.i, gan.d.i* opening, hole, window (Tu.)(DEDR 1176).
Glyph: *gan.d.e* 'to place at a right angle to something else, cross, transverse'; *gan.d. gan.d.* 'across, at right angles, transversely' (Santali)

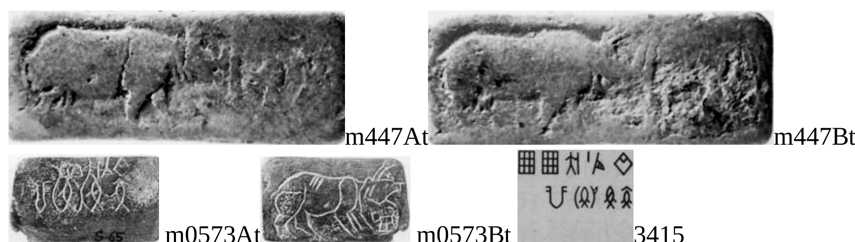
Substantive: **bhar** an oven; *bharan* to spread or bring out from a kiln (P.lex.) *bhaha_ra_, bhaha_ri_* little earthen furnace (P.)(CDIAL 9482). *bari_* 'blacksmith, artisan (Ashmolean)(CDIAL 9464). *bha_r* grain-parcher's fireplace (Bi.); *bharsa_ri_* furnace, oven (Hindi)(CDIAL 9685). *bhat.hia_r, bhat.ia_la_* grainparcher's shop (P.))(CDIAL 9658). *bhart-i_ya_* = a barzier, worker in metal (Gujarati.)

vara_ha = boar (Skt.)

Kalibangan039 8011m446Atm446Bt2854

Glyph: *t.akkiyam, t.akkayam, it.akkiyam* flag, swallo-tail banner, standard hoised on a car (Ta.); *t.akke, t.ekke, t.ekkeya, t.heke* banner, standard (Ka.); *t.ekkemu, t.ekkiyamu* flag, banner (Te.)(DEDR 2938). **d.en:kan.i, d.en:kan.a, d.hen:kan.i** = the flag-staff (with or without its flag) on the bastion of a fort (Ka.lex.)

Substantive: *dak* ‘possessions, occupancy’. The two signs on line 1 of text 8011: coppers (*pot.h, put.hia*) + *trapu* ‘tin’. The sign connoting ‘tin’ appears on a tin ingot from a marine archaeological find, perhaps from Crete.


m447At m447Bt
m0573At m0573Bt 3415

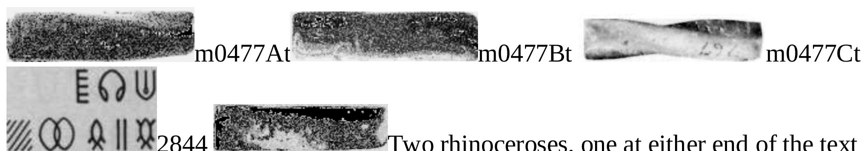
Substantive: *sa_l* = shed, workshop (Bengali) **saloi kamar** = a kind of blacksmith [Another kind is **kolhe kamar** = iron-smelter] sal = house, as in school house; shop, as in workshop; place, as in dancing place; kamar sal = a smithy; ban.d.i sal, paura sal = a liquor shop; ak sal a place where sugarcane is pressed; kut. sal = a carpenter’s or joiner’s workshop; dare butareko sal akada = they have set up a forge under a tree (Santali.lex.) s’a_l.a_ [Skt. s’a_la_] a place, a house; a school; an academy (G.lex.) sa_la_ [cf. Vedic s’a_la_; Lat. Cella cell; OHG halla, E. hall] a large (covered and enclosed) hall, large room, house; shed, stable etc.; aggi-s’a_la_ a hall with a fire; kumbhaka_ras’a_la_ potter’s hall; yan~n~as’a_la_ hall of sacrifice (Pali.lex.) s'a_lika a village of artisans; a weaver; a toll, tax (Skt.lex.) sa_la, sa_le a man who has a room or shop; s'a_li belonging to a house; endowed with, possessed of, possessing, having (Ka.lex.) <u>A tax on shops</u>: ca_li-pakuti a tax on shops (R.T.); ca_likai toll, customs, duty (Ta.lex.) sa_liga a man who has a room or shop; sa_liti a woman who belongs to a man that has a shop or room; sa_le, s'a_le, sa_li a hall, a room etc.; a school; a man who has a room or shop; sa_like business in a room or shop; s'a_lika belonging to a house; s'a_lika a village of artificers; s'a_like a small house, a room; s'a_li_na attached to the house or to one's own room; s'a_le a hall, a saloon (Ka.lex.) <u>Feeding-house</u>: ca_lai < s'a_la_ alms-house, feeding-house (T.A.S. I,9); sacrificial hall (Kampara_. Tiruvava. 84)(Ta.lex.) ca_lam surrounding wall, fortress; ca_lampam < sa_lamba that which has a support (Ta_yu. Tikruvarul.vi. 3)(Ta.lex.) s'a_la_ shed, stable, house (AV.); s'a_lam <u>adv</u>. at home (S'Br.); s'a_lika_ house, shop (Skt.); sa_la_ shed, stable, large open-sided hall, house (Pali.Pkt.); sa_la house (Pkt.); sal cattleshed (Ash.); s'a_l (Wg.Dm.); sa_l cattleshed on summer pasture (Pas'.); shed, workshop (B.); hall, house, school (.); s'al cattleshed (Kho.); s'eli goat-pen (Kho.); hal hall, house (K.); sa_lh house with thatched roof (L.); xa_l, xa_li house, workshop, factory (A.); sa_l.a shed, stable (Or.); sa_r cowshed (Bi.); cowshed (H.); sa_l. workshop, school (M.); sal-a, hal-a hall, market-hall (Si.)(CDIAL 12414). ka_l family, relationship (Ta.); ka_li herd of cows (Ta.); cow, cattle (Ma.); ka_l pillar (Ma.); trikkal tripod of three sticks on which tent is hung (Br.)(DEDR 1479).

Glyph: *sal* ‘wedge joining the parts of a solid cart wheel’ (Santali) cala_kku burin, engraver's tool; cala_kai needle-like tool of steel (cala_kai nur..ainta man.ittul.ai)(Man.i. 12,66); surgeon's probe; ramrod; spear, javelin; iron rod or stake; lath for roofing; cala_kai-p-pa_rai sharp pointed implement for digging; cala_kai-y-at.i to nail on laths, prepare laths; cala_kai-y-a_n.i lath-nail (Ta.lex.) <u>Needle, probe, bodkin; arrow</u>: xala_ pin (of bamboo, wood, or iron)(A.); sala_i_ pin (in spinning yarn)(L.); sal.a_i_ needle in shuttle, spindle (P.); needle, probe, bodkin (H.); coarse needle, short stick (Bi.); sara_i iron or wooden poker (Mth.); sal.a_, sal.ai_, sal.i_ pin, spike, skewer (M.)(CDIAL 12349). salay spike (K.); s'ala_ka_ arrow (Pali)(CDIAL 12349).

Glyph: *sal* = the Indian gaur, *gavaeus gaurus*; *sal sakwa* = a horn made from a horn of the gaur (Santali)

Substantive: *cu_l.ai* ‘kiln, furnace, funeral pile’ (Tamil) *culha* fireplace; *sulgao, salgao* to light a fire; *sen:gel, sokol* fire (Santali.lex.)
Glyphs: *cu_l.a* ‘tiger’s mane, head-dress, bracelet’ See the seal showing a set of animals, surrounding a seated, horned person with the face depicting tiger’s mane (m0304):
http://www.hindunet.org/saraswati/chank/salsak1.jpg

Substantive: *basla* ‘a small adze’ (Santali)
Glyph: *basla* ‘a fish’ (Santali)



m0477At m0477Bt m0477Ct

2844 Two rhinoceroses, one at either end of the text (Pict-29).



Swedish Bronze Helmet Plate Matrix Depicting Warrior with Boar-Crested Helmet. 8th Cent.

The ligaturing of a 'boar' on top of the warrior's helmet finds a remarkable parallel in the homonyms of the languages of Indian civilization: **kholaka**, helmet; **kola**, boar.

Substantive: **khad.aga, khad.aka** ‘rock’; **khad.akum** ‘a small rock’ (G.)
kha_d.a a ditch; a hollow; **kha_d.o** a pit; **kha_d.o khaiyo** several pits and ditches (G.)

Glyphs:
khat.a ‘six’ (G.)
kata = a pit saw (Santali)

khad.ako ‘a heap’; khad.aco a crag; a cliff; a steep rock (G.)
khad.a ‘grass, weeds’; Hem. Des. **khad.am** (G.)
khad.aki_ [Hem. Des. khad.aki_ = Skt. laghudva_ram, a small door; khid.ki_ (M.)] a courtyard; a compound; a street, a lane (G.)

kat.akam (Ta.)(IL 1519) metal helmet

khad.ga = rhinoceros, boar (Skt.lex.) khad.aga ‘a rhinoceros’ horn’ (G.) Boar's tusk; **kha~_g** (H.) kha_g (B.H.Ku.N.); khagga = rhinoceros (Pali.Pkt.) khagaha_ (OAw.) khagauto = bowl made of rhinoceros horn or hide used in offering water to the manes (N.) *gan.d.a garur.* ‘Boar, rhinoceros’ (Santali); *karu, garu, karavi* a mould (Tu.); *garra* form, mint (Kuwi)(DEDR 1280).
kat.uvan-pan-r-i boar (Ta.)(DEDR 1140) **ka_n.t.a_mirukam boar** (Ta.)

Rebus: *kan.d.* ‘furnace’; *garur.* ‘mould’
karu mould; karukku engraving, carving, embossed work (Ta.); *karu* bas-relief (Ka.);

khad.agum a species of small tiger (G.)

kulikamu = the weapon of Indra; the thunderbolt (Te.lex.)
kor.ga = to become blunt as the edge of a knife (Santali.lex.)

khola, boar, helmet; kol.i_, water-carrier

kholaka = helmet (Skt.lex.) [koli-sarpa, name of a degraded warrior-tribe (MBh. 13.2104; Hariv. 782: kolispars'a); a kind of weapon (Skt.lex.) cf. kol, kolhe = the Koles, an aboriginal tribe of iron smelters speaking a language akin to that of the Santals (Santali.lex.) kho_la = a kind of hat; helmet (Skt.); kur cap (Kt.); kereti (Avestan); wol.ik (Pr.); kho_lat.a_ (Pas'.); xolat.ek cap (Pas'.); khu (Kal.); khoi pointed cap

(Kho.); kho_i (Sh.); khol. hooded cloak (M.); holu cloth cap covering the cheeks, helmet (S.); xo_l (Psht.)(CDIAL 3942). cf. khol covering (Ku.); sheath (N.B.H.)(CDIAL 3944).

kola = boar (Skt.lex.) kola = a hog (Ya~jn~. 3.273); name of a degraded warrior-tribe (Skt.lex.) Corrupted from krod.a, a hog, chest; krod.a_sya, having a snout like a hog? (Hala_yudha 2.71: kola = hog). cf. **kul** = the tiger (Santali.lex.) kro_d.a breast, bosom (AV); kor.i_ breast of a quadruped (L.); koli_ chest of an animal (L.)(CDIAL 3607).

Furnaces of workers in wood and iron (carpenters, metal-workers)

bat.hi, furnace; **bad.hi** = worker in wood and metal

Glyph: ***badhi*** ‘to ligature, to bandage, to splice, to join by successive rolls of a ligature’ (Santali) **pat.t.e** = striep or streak of paint (Te.); pad.ita stripe, streak (Te.); **pat.t.i**, pat.t.e = stripe (Ka.)(DEDR 3877).

bad.hi = worker in wood and metal (Santali).

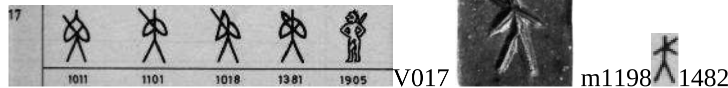
bad.d.u = creeper (Ga.); a thick or strong creeper or rope (Te.)(DEDR 3882). [Note the creeper with ficus leaves depicted as an arch upon a standing person.]

bat.i = a furnace for melting iron-ore (Santali.lex.) **bat.hi** = a furnace for melting iron-ore (the same as **kut.hi**)(Santali.lex.Bodding) bhat.t.hi_ = [Skt. bhr.s.ti frying; fr. bhrasj to fry] a kiln, a furnace; an oven; a smith’s forge; a stove; the fireplace of a washer-man;a spirit still; a distillery; a brewery (G.lex.)

bhat.a = a furnace, a kiln; **it.a bhat.a** = a brick iln; bhat.i = an oven, kiln, a still, a boiler, a copper (Santali.lex.) bha_t.-bhut. = frying; bhut.i-bha_t.i hasty frying (N.); bhr.s.ti = act of frying or parching (Skt.)(CDIAL 9597). Bhat.t.ha = gridiron (Pkt.); but.hu = level surface by kitchen fireplace on which vessels are put when taken off fire (K.); bat.hi_ distilling furnace (S.); bhat.t.h = grain-parcher’s oven; bhat.t.hi_ kiln, distillery; bhat.h (L.); bhat.t.h, bhat.t.hi_ furnace; bhat.t.ha_ kiln (P.); bha_t.i oven or vessel in which clothes are steamed for washing (N.); bhat.a_ brick- or lime-kiln (A.); bha_t.i = kiln (B.); brick-kiln, distilling pot (Or.); bhat.hi_, bhat.t.i_ brick-kiln, distilling pot (Or.); bhat.hi_, bhat.t.i_ brick-kiln, furnace, still (Mth.); bha_t.ha_ kiln (Aw.); bhat.t.ha_ kiln; bhat. kiln, oven, fireplace (H.); bhat.t.a_ pot of fire; bhat.t.i_ forge (M.); bhras.t.ra = frying pan, gridiron (MaitrS.)(CDIAL 9656). Bhras.t.raja produced on a gridiron (Skt.); bhat.ku_har, bhat.ku_hra_, bhat.hura_, bhat.hora_ cake of leavened bre3ad (P.)(CDIAL 9657). bhat.hia_r, bhat.ia_la_ grainparcher’s shop (P.))(CDIAL 9658). Bhra_s.t.ra = gridiron (Nir.); adj. Cooked on a gridiron (Pa_n.); bha_d.a oven for parching grain (Pkt.); bhar. to roast, fry (Phal); bha_r. oven (L.); iron oven, fire, furnace (Ku.); bha_r grain-parcher’s fireplace (Bi.); bhar.-bhu_ja_ grain-parcher (Bi.N. of Ganges); bha_ru_ , pl. bha_ra_ oven, furnace (Oaw.); bha_r. oven, grain-parcher’s fireplace, fire (H.); bha_d.i oven (G.); bha_d. (M.)(CDIAL 9684). bharsa_ri_ furnace, oven (H.)(CDIAL 9685). bhad. crackling fuel (M.); bhar. Crackle, rush (H.); bhar.bhar.a_t crackling of fire (Ku.); bhar.kan.u = to blaze (S.); bhar.k flash (P.); bhar.ak flash, display (H.); bhar.ku~ blaze (G.); bhat.akvu~ to blaze (G.)(CDIAL 9365). **bha_d.a** [Skt. bhra_s.t.raka fr. bhrassj to parch] a kiln or oven for parching corn; a pan in which corn is parched; a large well; bha_d.iyo = an earthen pot with a hole in its side in which corn is parched (G.lex.) **bhat.t.hi_** [Skt. bhr.s.ti frying] a kiln; a furnace; an oven; a smith’s forge; a stove; the fireplace of a washerman; bhat.hiya_ro an eating-house keeper; a baker, a cook (G.lex.)

 m1653 ivory plaque 1905 The sign shown on Text 1905 is a representation of an armed person, carrying a spear protruding above his left shoulder. [A clear pictographic indication of the

association of the ligatured sign with a 'warrior' or 'an armed guard']



V017 m1198 1482


h684 4632 [The last two signs of Text 4632 occur on 93 epigraphs]

The epigraph 1905: eye ‘*me~t*’; iron ‘*me~r.he~t*’;

Alternative 1 for Sign 17: *bhat.a* ‘warrior’; rebus: bhat.a ‘furnace, kiln’

Alternative 2 for Sign 17: *pahar* ‘guard’; *paghal* ‘pig-iron’


m0007 1011

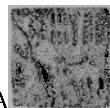
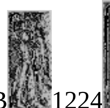
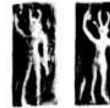
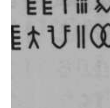
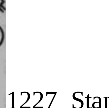
Four signs of the epigraph, from the left: *ko_li* a stubble of jo_l.a (Ka.); *ko_le* a stump or stub of corn (Te.); *kol* ‘smithy’; *bal* ‘bangle’; *bal* ‘iron ore, iron stone stand’;
Alternative 1 for Sign 17: *bhat.a* ‘warrior’; rebus: bhat.a ‘furnace, kiln’

Alternative 2 for Sign 17: *pahar* ‘guard’; *paghal* ‘pig-iron’
kan.d.kankha ‘copper furnace’

Glyph: *dahna* the right hand (Santali)
Substantive: *dahn:ga dahn:gi* blazing, flaring; *dahni dag* mark of burning, scar (Santali)
Substantive: *dahna* a small quantity of grain given daily to an agricultural labourer during harvest over and above his wages (Santali); *dahnau* to pray, to honour, to worship, to appease, to propitiate (Santali)

Substantive: *d.han:gra* ‘blacksmith’

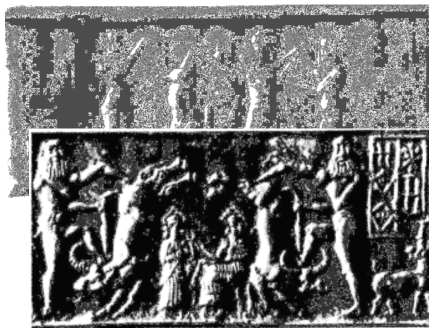
Glyph: *kud.i* right, right-hand (Te.)(DEDR 1654).
Substantive: *kut.hi* ‘a furnace for smelting iron ore, to smelt iron’; *kolheko kut.hieda* koles smelt iron (Santali)

 m1224A  m1224B  1224  m1224e   Pict-88 1227 Standing person with horns and bovine features (hoofed legs and/or tail).

The ligature of the back of a bull to the horned person may connote:
d.hagara_m pl. ‘the hips, the buttocks’ (G.); rebus: *d.han:gra* ‘blacksmith’

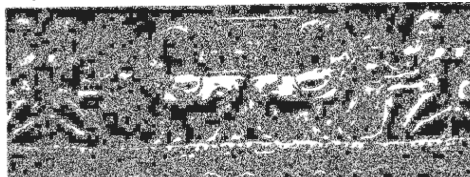
Such ligaturing is also evidenced in Akkadian cylinder seals:


Akkadian cylinder seal. Inscription: 'Naram-Sin of Akkad: Ukin-Ulmash his son'. The 'Sarre cylinder', Collection Othmar Keel, Fribourg; cf. Collon 1987: no. 528 Buffalo in conflict with a lion.



Akkadin cylinder seal. A person ligatured to a bull fights a buffalo; a person ligatured to a bull fights a lion. The Oriental Institute of Chicago (AS. 33: 113). After Boehmer 1965: no. 230

Late Akkadian cylinder seal. Enki, 'water-god' sits between two buffaloes. The fighter on either side places a foot on the head of the buffalo. After Boehmer 1965: no. 223



A late Akkadian cylinder seal ca. 2200 BCE.Musee du Louvre/AO 22303 (Collection De CLercq). Water flows from the pot of Enki and is offered to the two buffaloes. Inscription: 'S'argalis'arri, king of Akkad: Ibnis'arrum, the scribe, (is) your servant'. After Boehmer 1965: no. 232. Cf. Colloon 1987: no. 529.

Alternative: kun.d.e = buttock; the buttocks, the posteriors, the anus (Ka.); **kun.d.i** (Ta.Ma.); kut.t.i, kutte, gudde (Te.); kulla_ (M.); mu_di (Ma.)(Ka.lex.)

kun.d.e = the bottom of a vessel (Ka.lex.)

Rebus: **kun.d.i_** chief of village

kat.a market (Ma.); **kat.ai** shop, bazaar, market (Ta.);(DEDR 1142).

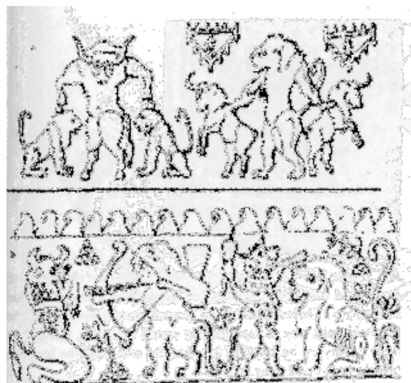
bayar, **bayar kad.a** = an entire, uncastrated buffalo; rut, be lascivious (Santali); boya_r (B.)(Santali.lex.Bodding)

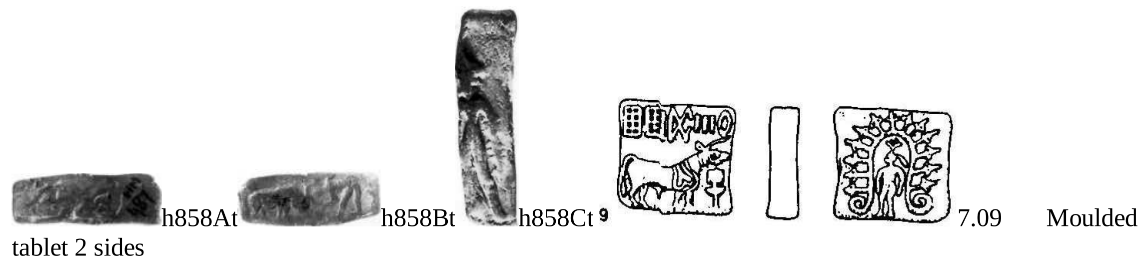
sal = Indian Gaur, *Bos Gaurus* (or, *Gavaeus Gaurus*). Now extinct in the Santal Paragnas. Also called **bir kad.a**, forest buffalo. Sal bitkil, the cow of the Gaur; sal sakwa, a horn made from the horn of the Gaur (Santali); saili, sakil (Mun.d.ari)(Santali.lex.Bodding) sail = the Indian Gaur of bison, Gavaeus Gaurus (Mundari.lex.) **kad.a** = a buffalo bull (Santali) **kat.ama_** bison (Ta.)(DEDR 1114).

goraka = wild buffalo

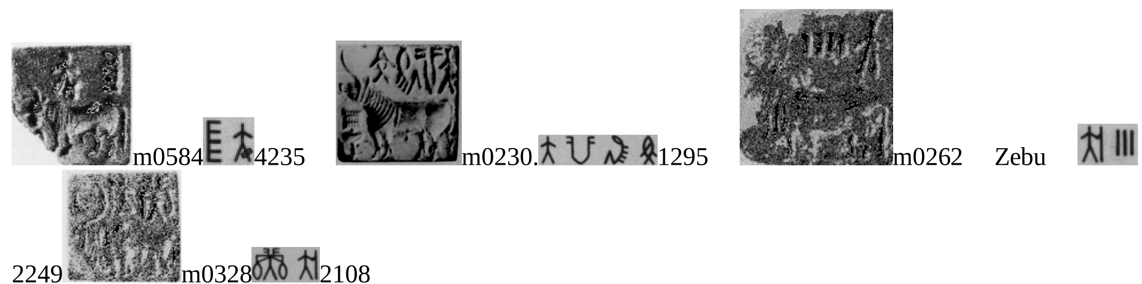
gorka spear (Pa.Go.); goh-ka, gohka id. (Go.)(DEDR 2126). kahli a fish-spear (Santali.lex.) goraka = metal arrow

Two seals from Susa, ca. 3100-2900 BCE. Proto-Elamite. The contest of lion and bull; the top seal shows two one-horned bulls being subdued by a lion; and a bull subduing two lions; the bottom seal shows that the bull confronts a lion-bodied archer and the bull holds a raised club as it confronts the lion. After Amiet 1980, *La Glyptique mesopotamienne archaique*, 2nd edn., Paris: pl. 38, no. 585 (=a) and no. 591 (=b). The two triangles shown on the seal on top may be comparable to the 'fire-altars' found in civilization sites with a central stele.





h858At h858Bt h858Ct 7.09 Moulded tablet 2 sides



m0584 4235 m0230. 1295 m0262 Zebu 2249 m0328 2108

pin.d.a = the body; pin.d.a-jn~a_n = the science of anatomy (G.lex.)

The importance of the 'body' glyph is seen in the Seal m0304 Text 2420 where the glyph appears together with the glyphs of: buffalo, tiger, rhinoceros and elephant, all surrounding the horned, seated person. A pair of 'antelopes' also adorn the platform on which the person is seated in a yogic posture.

Standing person with horns: *ka_d.i* 'body'; *ka_t.i* 'furnace'
d.abe large horns; *d.ab, d.himba, d.hompo* 'lump (ingot?)' (Santali)

Ancient inscriptions found in Gulf of Khambat Cultural Complex

Image of a seated person on a tablet in bas relief found in Gulf of Khambat Cultural Complex

That the Gulf of Khambat Cultural Complex (GKCC), with early origins dated to ca. 9000 years Before Present, is a precursor of the Sarasvati Sindhu Valley Civilization is dramatically confirmed by a triangular tablet with an image engraved in bas relief.
Many finds which are characteristic of the so-called pre-Harappan artefacts include the finds such as: a bathing complex, structures of multi-storeyed buildings comparable to those found at Mohenjodaro, use of gabar bands to divert water from river channels -- a feature common along the River Sindhu in the Sind region--, triangular cakes, some triangular cakes with circles drilled in, long cylindrical and perforated stone beads and many types of semi-precious stone beads. What are referred to ancient inscriptions in the exhibits kept at the National Institute of Ocean Technology complex in IIT Campus, Chennai are discussed.

Image of a seated person often referred to as a yogic posture is a remarkable motif on some inscribed objects. The image is also depicted on tablets carved in bas-relief at Harappa as confirmed by the 1998 finds at Harappa by Kenoyer and Meadow.

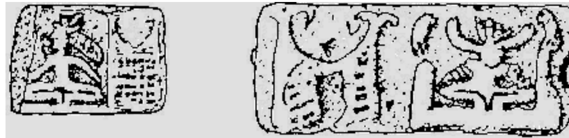
Two remarkable finds of the Gulf of Khambat Cultural Complex (GKCC); these may constitute the world's oldest inscriptions found so far and perhaps also the oldest writing system of the world dated to ca. 9000 years Before Present:

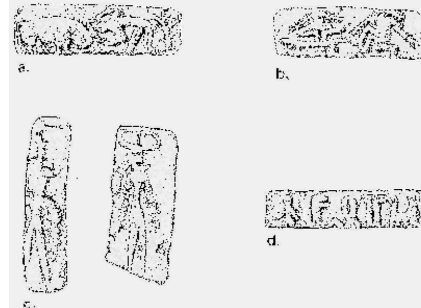
One is a triangular sandstone tablet, shaped like an equilateral triangle about 6" at the base. At the apex, the head-dress of a seated person is faintly visible, since the slab is weathered by the sea waters; the entire

composition is in carved in bas-relief. The orthography of the weathered slab is comparable to similar seated persons depicted on some inscribed objects discovered at Harappa and Mohenjodaro.

On another smaller triangular tablet a sign in bas-relief is faintly visible. The sign is comparable to a triangle with horizontal lines.The sign is comparable to Sign 204 on some inscribed objects. 

Harappa. Two tablets. Seated figure or deity with reed house or shrine at one side. Left: H95-2524; Right: H95-2487.





Harappa. A series of small tablets. A. man fighting a short-horned bull; a small plant with six branches; b. seated figure in yogic posture with arms resting on knees; both arms covered with bangles; traces of a horned headdress and long hair are visible on some impressions; a second individual, also with long hair and wearing bangles, sits on a short stool; ; c. standing deity with horned headdress with a curved branch with three projecting leaves; bangles visible on both arms; d. inscription with six signs; the first sign appears to be some form of an animal; the last shows a person.

To hit with fist (tablet showing man fighting with bull): *kud.rau*; Rebus: *kod.rao* ‘to scrape out, to gouge out’ hence, scraper.



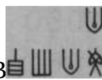
Slide 142. Molded tablets from Trench 11 sometimes have impressions on one, two, three or four sides. This group of molded tablets shows the complete set of motifs. One side is comprised entirely of script and has six characters, the first of which (on the very top) appears to be some sort of animal. A second side shows a human figure grappling with a short horned bull. A small plant with at least six branches is discernible behind the individual. The third panel portrays a figure seated on a charpoy or throne in a yogic position, with arms resting on the knees. Both arms are covered with bangles, and traces of a horned headdress and long hair are visible on some of the impressions. A second individual, also with long hair and wearing bangles, is seated on a short stool to the proper left of the individual on the "throne." The fourth panel shows a deity standing with both feet on the ground and wearing a horned headdress. A branch with three pipal leaves projects from the center of the headdress. Bangles on seen on both arms.

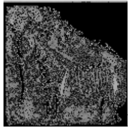
Sin: bon:ga!. Sun god. [Rebus representation: sim.ha, 'lion'; sin:g, 'horn' (s'r.n:ga, 'horn' Skt.); bon:ga, eminent person; gavala, 'buffalo horn'; pum.gava, 'eminent person' Skt.] **pum.gava** = a bull (La_ty. Hariv.); a hero , eminent person , chief; pum.gava-ketu = "marked by a bull ", Name of S'iva. **sin: bon:ga** = sun god (Santali.lex.)

pon:ga of ebullition or of exalted courage (Ka.); pon:ku prosperity, fortune (Ta.); pon:kal abundance, splendour; n. pr. of a festival, abundance, profusion; pon:kam increase, abundance, joy, splendour; pokkam abundance, eminence, splendour; pommu (pommi-) to swell, excel in appearance; pommal abundance, thickness, plumpness; bommen-al to swell (Ta.); pon.n.al ostentation (Ma.); pon.n.accam display, boasting (Ma.); pompur..i growth, greatness (Ka.); pon:gad. proud flesh (Tu.); pon:gu to rejoice, be elated, be puffed up, be proud; n. joy, pride (Te.); pon:gincu to please, flatter, puff up, coax; pon:ka pride, haughtiness; bugulu-

konu to increase, swell, rise; pompiri abundant, full (Te.); pon:gipt id.d.eng to exaggerate (Kol.); pon.i- (-t-) to be bloated, swell up (Kond.a)(DEDR 4469).

The seated person may be read as **pum.gava(la)**; gavala, 'buffalo horn'. Since the depiction is of an eminent person, with face depicted as a lion, he could be bon:ga, 'eminent person'; sin:g bon:ga, 'sun god' (sin:g rebus, 'lion' as a phonetic determinant).

 m1203A  m1203B  1018 Note the gimlet (**tamiru**) precisely indicated on the standard device on m1203A, the sharp point is drilling into a disc-shaped bead].

 m0299 Composite animal with the body of a ram, horns of a bull, trunk of an elephant, hindlegs of a tiger and an upraise serpent-like tail. 1381

Glyph: *pahar, pahra* guard (Santali) *bhad.a* a warrior, a hero (G.); *bhat.a* warrior (Skt.)
Substantive: *bhat.a* furnace, kiln (Santali)

m417AC Pict-62: Composition: six heads of animals: of one-horned heifer, of short-horned bull (bison), of



antelope, of tiger, and of two other uncertain animals) radiating outward from a hatched ring (or 'heart' design).

 1383

bhat.a = a warrior (G.lex.) bhad.a a warrior; a hero; adj. Strong, mighty; opulent; an opulent person (G.lex.) **bhar.** = soldier (B.); warrior (G.); hero, brave man (Ku.); bhat.a = hired soldier (MBh.) pat.ai = army, weapons, battle (Ta.); pat.a = battle, army (Ma); pad.eyila = soldier (Ka.); pad.eval.a = a general (Ka.); pad.ava = fight, battle; pad.avalamu = van of an army; pad.ava_lu = commander of an army (Te.)

> **batur.i** = a young bull; batur.iko hukarea = young bulls low (Mundari.lex.) cf. bat.u = boy (esp. a young Brahman), term applied contemptuously to an adult (MBh.); bar.u a Brahman title (B.); servant (Or.); bar.ua_ Brahman boy, pupil (H.); bad.u_u (OG.)(CDIAL 9121). bhat.t.o = a contemptuous term for a bra_hman.a; bhat.a, bhat.t.a = a title affixed to the names of learned bra_hman.as; a learned man (G.lex.)

In association with the six heads of animals, the term bhat.a 'furnace' can be related to types of minerals subjected to smelting/melting in the furnace or kiln:

One-horned heifer or steer: *damr.i* (rebus: *ta_mbra* 'copper')
Bison: *bali* (rebus: *bali* 'iron stone ore')
Antelope: *melh* (rebus: *melukka* 'copper')
Tiger: *kol* (rebus: *kol* 'smithy')

6455.**Image: leaf**: **phat.** leaf (Dm.); **pat.a_, pu_t., pad.d.ak, pha_t.ak** (Pas'.); pat.t.a (Shum.); par. (Wot..); **phat.a** (Gaw.); pat.u a long leaf (Sh.); pot., pat.a (D..); pa_t.u, pat.u, pat.hu, pat.he leaf (Sh.); **pa_t** leaf, leaves and grass (Ku.); pattra wing-feather (VS.); leaf, petal (Ka_tyS'r.); leaf of book (Skt.); patta wing, feather, leaf (Pali); patti_, pattika_ leaf (Pali); patta, pattaya, pattia_ wing, leaf, page (Pkt.); patri, patrin leaf (Gypsy); s'a_pa_tr butterfly (Pas'.)[cf. patan:g butterfly (Wot..)(CDIAL 7721)]; pat leaf (Bshk.); path[a]r, patras (K.); pa_s. (Tor.); chilu-pat.ru goods and chattels (S.); pattar leaf, foliage; pattra_ palm-leaf fibre (L.); patra_ page (L.); patri_ leaf (L.); pattar, patra_ leaf (L.); patt, pattra_, patta_ leaf (P.); pattri_, patti_ leaf, almanac (P.);

pat.i_, pat.lo~ leaf (WPah.); pa_to horoscope, metal plate used to repair something broken (Ku.); pa_ti_ leaves, letter (Ku.); pa_t leaf (N.A.B.H.); thin metal plate (H.); pa_ti leaf, flowers used in worship (N.); pa_ta_ leaf, blade (B.); Pinnate-shaped leaf: pinnate-shaped leaf (M.); pa_t, patta_ leaf, page, epistle (Mth.); pa_t, patai_ leaf (Bhoj.); pa_ta_, pa_ti_ (Aw.); pa_ta_, patta_ leaf (H.); pa_ti_, patti_ leaf, epistle, clue (H.); pa_tru~, pa_tu~ leaf (G.); pa_tri_ packet of leaves and flowers (G.); pa_te~ leaf, blade (M.); pa_ti_ narrow leaf (M.); fat, fai leaf (Md.); pet.ege_ feather; wet.ege letter paper (Pr.); pata wing, feather, leaf (Si.)(CDIAL 7733). 6689.Laurus cassia: patra the leaf of the laurus cassia; a leaf (Ka.Skt.)(Ka.lex.) 6688.Feather: patti, patra a feather (Ka.); patra-na_d.ike the fibre or vein of a leaf (Ka.)(Ka.lex.) 6454.Leaf: pattraka leaf (esp. of laurus cassia)(Bhpr.); pat^{a}r, pat^{u}r^{u} leaf (esp. of cinnamomum albiforum)(K.); patra_ c. albiforum (P.)(CDIAL 7734). pattrala leafy; leaflike, thin (Skt.); pattala leafy; leaf, leaves (Pkt.); patul^{u} mat made of pieces of wood and reeds (K.); pattal leaf-platter (P.)(CDIAL 7736).

bat.i = a metal cup or basin; bhat.i = a still, a boiler, a copper; dhubi bhat.i = a washerman's boiler; jhuli bhat.i = a trench in the ground used as a fireplace when cooking has to be done for a large number of people (Santali.lex.) bha~utic = a leaf cup, a cup made of leaves pinned together (Santali.lex.)

pattar wooden trough for feeding animals (Na_lat.i, 257); **pat.t.at.ai** plank used for crossing a channel (W.)(Ta.); **pattal** a wooden bucket (Patir-r-up. 19,23)(Ta.lex.) patalai large-mouthed pot (Aric. Pu. Viva_ka. 292); ornamental pitcher mounted on a tower (Tiv. Periyati. 3,8,2); boat (Ta.); pa0s- large, broad-mouthed clay-pot (To.); patli cooking pot (Go.Malt.)(DEDR 3909). Image: trough: **pan-r-ippattar** hog-trough; water-scoop for irrigation (Cilap. 10,110, Urai.); **pattal** a wooden trough for feeding animals; ditch, depression (Nar-. 240)(Ta.lex.)

[Note the ligature of a bovine's hinder-part to a standing, horned person.] Image: back; behind: **pattar** further behind (WPah.); **pattrau~** hinder (WPah.); apa_ktah back (AV.);. pa_kta_t from behind (RV.); pa_c- behind (RV.); pate~_i after (Ash.); al patai (Wg.); pat (Pas'.); pata behind (Gaw.); patae afterwards (Gaw.); pade back, again (Wot..); pat after (Bshk.); patai second; patka again (Bshk.); pat, pad behind (Tor.); pato_ (Mai.); phat (Sh.); pot^{u} hinder, subsequent; pat^{i} behind (K.); patte behind (WPah.); pati_r after, beyond (Ku.); patama adv. back (NiDoc.); patyum^{u} hindmost (K.); pettio~ hinder (WPah.)(CDIAL 7732).

vartaka = bell-metal, brass (Skt.)(CDIAL 11347).

vartana = occupation (G.Skt.)

pattar merchants; perh. vartaka; Goldsmiths: **pattar** a caste of goldsmiths (Ta.); battud.u id. (Te.);Goldsmith's trade; storehouse: bha_n.d.as'a_la_ storehouse (S'atr.); bhar.asa_ra cupboard for keeping food in (OH.); bha_d.sa_l, bha_d.sa_r, bhansa_l storehouse, granary (H.); bad.ahala pottery (Si.); bad.ahal, bad.a_la_ goldsmith; bad.al-vad.a goldsmith's trade (Si.); bad.ahl potter (Si.); bha_n.d.a treasure (Skt.); bha_n.d.aka goods (Skt.); bhan.d.a stock-in-trade, goods (Pali); -bhan.d.aka = articles, implement; bhan.d.ika_ collection of goods, heap, bundle (Pali); bham.d.a = utensils, goods (Pkt.); bham.d.ia_ bag (Pkt.)(CDIAL 9440).

Guild of workmen: **pat.t.ar-ai** community; guild as of workmen (Ta.); pat.t.ale id. (Ka.)(Ta.lex.) pat.t.ar-ai factory, rice-hulling machine, machine (Ta.)(Ta.lex.) 6472.Workshop: pat.t.ad.e, pat.t.ad.i anvil, workshop (Ka); pat.t.at.ai, pat.t.ar-ai, anvil, smithy, forge (Ta.); pat.t.ika, pat.t.ed.a anvil (Te.); **pat.t.ad.a** workshop (Te.)(DEDR 3865). Goldsmith's small hammer: bhar.i goldsmith's small hammer (N.); bham.d.a barber's utensils (Pkt.); bha~_r.i, bha~_ir. razor case (B.)(CDIAL 9440). pan.t.akkalam gold ornament (Man.i. 26,23); pan.t.am gold; wealth, riches (Tiv. Tirukkur-un. 11); pan.t.akka_ran- rich man; owner of goods (Ta.lex.) Goldsmith: bad.ahal, bad.a_la_ goldsmith (Si.); bad.al-vad.a goldsmith's trade (Si.); bad.ahal potter (Si.); bha~d.sa_l, bha~d.sa_r, bhansa_l storehouse, granary (H.); bad.ahala pottery (Si.)(CDIAL 9441). pala-pat.t.at.ai store room in which diverse articles are kept; people of various castes; a general tax on merchants and artisans (Ta.lex.) For semant. 'artisan' X 'workshop' : Workshop; anvil; smithy: pat.t.ar-ai, pat.t.arai machine; rice-hulling machine; factory; pat.t.at.ai smithy, forge (Ta.); pat.t.ad.i id. (Ka.) (Ta.lex.) pat.t.at.ai anvil (Kur-al., 821); pat.t.ar-ai anvil (Ta.); pat.t.ad.e, pat.t.ad.i anvil, workshop (Ka.); pat.t.ika, pat.t.ed.a anvil; pat.t.ad.a workshop (Te.)(DEDR 3865). pat.t.at.aiya_r master of a shop; overseer (Ta.lex.) bha_n.d.ika_ an

implement, a tool, utensil; **bha_n.d.am** any tool or instrument, an implement (Skt.lex.) Support; anvil: at.a- support, anvil; at.ai prop, slight support (Ta.); at.ai-kal anvil (Ta.); at.a-k-kallu anvil of goldsmiths (Ma.); ar. gal small anvil (Ko.); ad.e, ad.a, ad.i the piece of wood on which the five artisans put the article which they happen to operate upon, a support (Ka.); ad.egal, ad.agallu, ad.igallu anvil (Ka.); at.t.e a support, stand (Tu.); d.a_-kali, d.a_-kallu, da_-kali, da_-gali, da_yi anvil (Te.)(DEDR 86). ad.d.i_ iron rest for supporting tools in turning (L.); ad.a_v the wooden beam supporting a log when being sawn (K.); ad.d.o support for a log being sawn (WPah.); ad.an.u to build (S.); a_r.o support, bolt of door (Ku.); a_d.n.i_ a stand (G.); ad.aya prop, stopper (Si. perhaps direct < at.ai (Ta.)(CDIAL 188). ot.hi~gvu~, at.hi~gvu~ to lean; ot.hi~gan. a prop (G.)(CDIAL 772). adhikaran.i_ anvil (Skt.); smith's anvil (Pali)[explained as: originally meaning 'serving, that which serves, i.e. intrument' (Pali.lex.)]; ahigaran.i_ a piece of apparatus for a smith (Pkt.); yi_ran, dat. yu_ru anvil (K.); aharan.i, aran.i (S.); arin., e_run. (L.); airan., aihran, a_hran. (P.); arhini (WPah.); ern.e smithy (WPah.); a_ran (N.); aheran, a_hran anvil (H.)(CDIAL 252). adhikaro_ti puts at the head of (MBh.Pkt.); ye_run to sort or arrange the warp for the loom (K.)(CDIAL 253). pat. side (left or right)(Ko.); pat.t.i direction, side (Go.)(DEDR 3871)]. Anvil: pratika_ya target (Skt.); pariya_t.ha_ wooden framework over a well on which the drawer stands; carpenter's block, anvil block; paret.ha_ anvil block (Bi.); pariat.h, parait.h, parhat.a_ fodder chopping block (Mth.)(CDIAL 8544). **pat.t.at.ai** piece of board temporarily used as a seat (Ta.lex.) [?pat.u + at.ai : pat.u to hit or strike against (Ta.)(DEDR 3853) + at.ai support (Ta.)(DEDR 86)].

bhad.d.u_ copper cooking vessel (P.); bhad.d.u (N.)(CDIAL 9368). bha_~r. = necked vessel for milk or ghee (Bi.); bha~_r.a_ milking vessel (Bi.); bha~_r. large earthen pot, vessel for milk or ghee (Mth.); utensil (Bhoj.); bha~_d.u~ pot (G.); bha_~d., bha~_d.e~ (M.); bha_n.d.a pot, dish, vessel (Mn.); bha_n.d.aka small cup (Skt.); bhan.d.a utensils (A_past.); bham.d.a = vessel (Pkt.); bha_n.d. cooking pot (WPah.); bha_~d.e pl. metal vessels (WPah.); bha_~r.o large pot or cooking rice (N.); bha_n.d.a cooking pot (Or.)(CDIAL 9440).

6471.Grain-pit; ditch: **pa~_tar-a** grain-pit or cellar (Te.); pa.tar grain storage pit (Kol.); pend- to bury (Pa.); pendup- (pendut-) id. (Ga.); pa_ntu cavity, hollow, deep hole (Ta.); pattar, pattal ditch, depression (Ta.); pa_tu to bury, fix in the grain-pit, cellar (Kond.a)(DEDR 4080). To store up grain: pat.t.at.ai-kat.t.u-tal to store up grain in an enclosure of straw; pat.t.at.ai-kat.t.i an avaricious person; pat.t.at.ai corn-rick, enclosure of straw for grain, wattle and daub, granary; stock, heap, pile, as of straw, firewood or timber (Ta.lex.) Pitfall: pa_tampi a pitfall (Te.)(DEDR 4080). Image: to fall down: prapatati flies down, falls down (RV.); papatati falls down or into (Pali); pavad.ai falls (Pkt.); pavan.u to fall, happen (S.); pevan., pres. part. ponda (but pp. pe_a_) to fall; povan. to fall, happen, lie down (L.); paun.a_ to fall (P.); pu_n.u_ (WPah.)(CDIAL 8675). prapatana falling down (Gaut.); papatana falling (Pali); pavad.an.a (Pkt.); paun.u pitfall dug to catch wild animals (S.)(CDIAL 8676).

kut.hi = a furnace for smelting iron ore, to smelt iron (Santali.lex.)

[Rebus: **kut.hi** 'tree'; **kut.he** 'leg of chair'; **ku_di_, ku_t.i_** (Skt.lex.) **ku_di_** (Vedic) 'bunch of twigs']

Yogi in penance: kamat.ha; portable furnace: kamat.a

Mohenjo-daro. Sealing. A person in yogic posture seated on a stool. Fish, alligators (lizards) and snakes surround. Ashmolean Museum, Oxford. [Note: snub-nosed crocodile?]

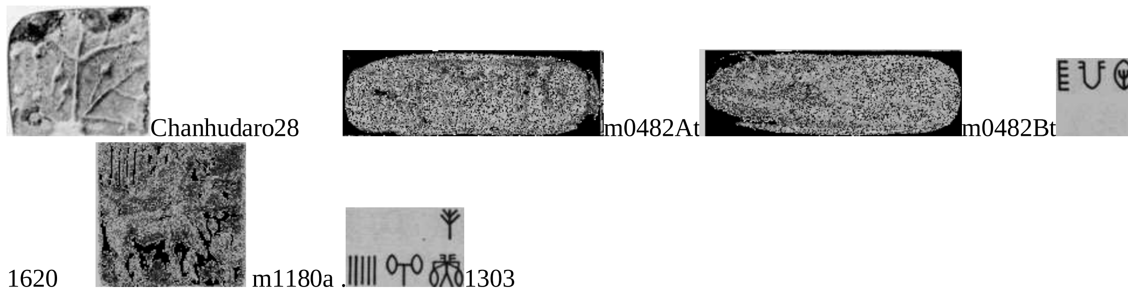


kamad.ha, kamat.ha, kamad.haka, kamad.haga, kamad.haya = a type of penance (Pkt.lex.)

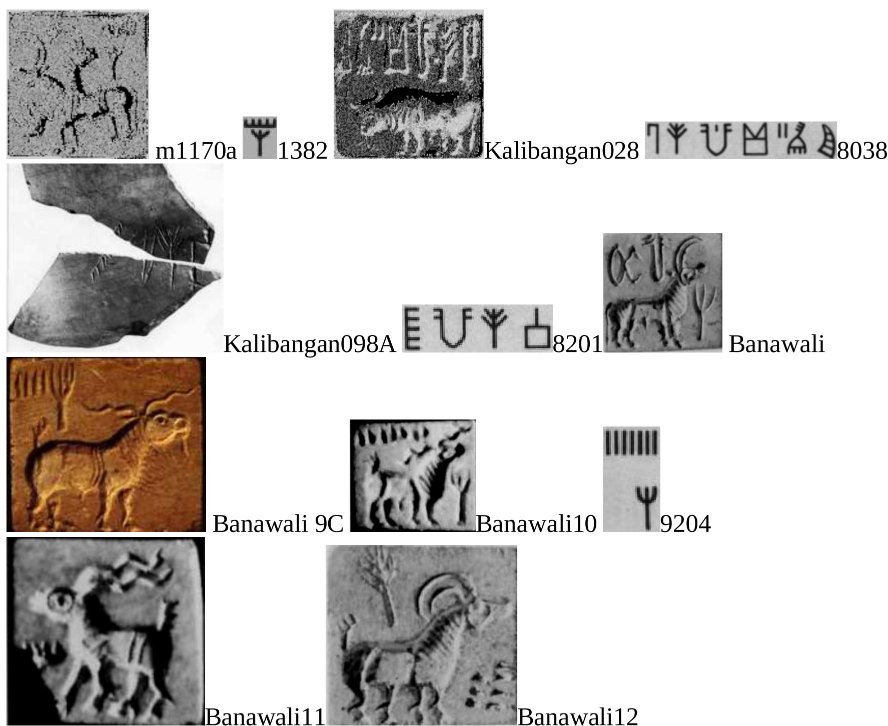
kamat.amu, kammat.amu = a portable furnace for melting precious metals; kammat.i_d.u = a goldsmith, a silversmith (Te.lex.)

kamba, ka_mba = handle (Kuwi); ka_me_ stalk of a spoon (Go.)(DEDR 1454). [Note the glyph of a ladle ligatured to a rimless pot.]

On many inscribed objects, the orthographic distinction between a small tree, a sprout and a stump is blurred and may be subject to varying rebus interpretations:


Chanhudaro28 m0482At m0482Bt 1620 m1180a .1303

kun.d.i_ = chief of village.


m1170a 1382 Kalibangan028 8038 Kalibangan098A 8201 Banawali Banawali 9C Banawali10 9204 Banawali11 Banawali12

kotar [Skt. **kot.ara** = a hollow, a hole; cf. **kot.aravum** = to dig, to carve] a den; kotaran.i_ an engraving; an instrument for engraving; **kotaravum** [Skt. kr.d cut] = to engrave, to carve (G.lex.)

kut.am = hub of a wheel (Ta.lex.)

kut.i = the upper end of a husking pole (Mundari.lex.)

kot.ho = the upper part of an an:garakha (G.lex.)

ku_t.u nest, coop (Ta.); ku_n.t.u hen-coop (Ma.); gu_d.e nest (Ga.)(DEDR 1883).

m0026a 2074 [Note the top part of the standard device, shaped like a coop?]
Note the imagery of a coop or cage on some orthographic styles of the 'device' in front of the one-horned bull.

> **ku_t.u** top of the drill for boring holes; mortise, groove, in carpentry (Ta.lex.) [Note some variants of the standard device depicted like a coconut shell]. **gud.iga_re** a turner and a cabinet maker (Tu.lex.) **gud.ga_r** turner (Kon.lex.) **gud.iga_re** a turner and a cabinet maker (Tu.lex.)



Headman **kor-r-avan-** (Ta.)(IL 1829)
Naked woman **kot.a_ri** = naked woman (IL 1829a)
Branch of a tree ko_t.u, ko_t.aram (Ta.)

khu~t. kat.a = land reclaimed by the cultivator (Santali)

khu~t. = a community, sect, society, division, clique, schism, stock; khu~t.ren per.a kanako = they belong to the same stock (Santali) **khu_t.** Nag. khu~t., ku_t. Has. (Or. khu_t.) either of the two branches of the village family. These are **paha_r.khu_t.** Nag. pa_r.a_ku_t. Has. The elder branch, to which the official village sacrificer must belong, and the **mund.akhu_t.,** the younger branch, in which the position of village chief is hereditary. (Mundari.lex.) **ku_t.a** a house, dwelling (Skt.lex.) kaut.a living in one's own house, hence, independent, free; kaut.ika-taks.a (opp. to gra_ma-taks.a) an independent carpenter, one who works at home on his own account and not for the village (Skt.lex.) gra_ma-ku_t.a = village chief (Skt.lex.)

kut.ha_ru = writer (G.) kut.ra = to make into pieces; khutur = sound of crunching; khutri = to shred, to make into small pieces (Santali) **khot.rao** = to scrape, to cut by a scraping action, to scrape out of a hollow, to gouge (Santali.lex.) kut.aga, kut.ika, kut.aka = one who beats; kalukut.iga = one who beats stone (Ka.lex.) **khun.t.iyo** = a man versed in witchcraft (Surat.G.lex.) **kot.t.eti** hews, breaks, crushes (Pali); **ku_t.ab** to roughen a millstone with a chisel (Bi.)(CDIAL 3241).**ku_t.ud.u** = a stone cutter (Te.lex.) **kut.ha_ri** = an axe-bearer, a chief of the door-keepers (Ka.lex.) **kot.t.i** = going one's rounds as a watchman; ko_t.ika_d.u, kot.t.ika_d.u = watchman (Te.lex.) as.t.a_das'apradha_na = the eighteen nobles in close attendance on a king: paurohita, dan.d.ana_tha, adhyaks.a, adhika_ri, mantri, pradha_na, maho_gra_n.i, bhan.d.a_ri, sena_na_yaka, sandhivigrahi, pratiha_ri, antasthita, dva_rapa_la, karan.ika, dan.d.apa_n.i, kut.ha_ri, sthalava_ra, yuvara_ja (Ka.lex.) **go_dari** = a man of the Moochi caste, who live by lacquer work, painting toys (Te.lex.) **god.a_ri**, **god.agari** = a shoe-maker, a cobbler; god.agara = a caste of cobblers (Te.lex.) **kot.t.ad.i** = a storehouse, warehouse, godown; kot.a_ri, kot.ha_ri = a store-keeper; kot.a_ramu, kot.a_ru = a place to keep grain, salt etc.; a store-house, bank-stall, **magazine,** depository (Te.lex.) [Note the semant., 'magazine', in the context of **kut.ha_ru = armourer**].

Tent, house **kut.a_ram** (Ta.)(IL 4872)

kut.aramu, kut.haramu = the post round which the string of the churning stick passes (Te.lex.) [Note the post around which a symmetrical imagery with two heads of 'one-horned bulls' and nine leaves are depicted on an inscribed object.]



Central 'ligatured' glyphs of a seated person in penance

kamad.ha, kamat.ha, kamad.haka, kamad.haga, kamad.haya = a type of penance (Pkt.lex.)

kamat.a = a portable furnace (Te.)

m0304AC Pict-81: Person (with three visible faces, or, with tiger's mane) wearing horned head-dress, bangles and armlets seated on a platform (with a pair of sheaves, antelopes looking

backwards) and surrounded by five animals: rhinoceros, buffalo, antelope, tiger and elephant.
2420
Text: *bha~ora* ‘brace, boring instrument’; *bara* ‘oven’*; bar* ‘two’; *hako* ‘fish’; *hako* ‘axe’; *kan.d.kanka* ‘rim of pot’; *kan.d.kanka* (copper) furnace; *ten:go* ‘standing’; *t.en:goc* ‘a small axe’

kundavum = a manger, a hay-rick (G.lex.) **kundhavum** = a heap of hay or sticks (G.lex.) **kuntam** = haystack (Ta.); kuttar-i = a stack, a rick (Ka.)(DEDR 1724). [Note the haystack on the stool on which a person sits].

kat.iya_ buffalo heifer (G.); kad.a buffalo (Santali); **kad.a** = a buffalo (Santali.lex.) **kat.a_damu** = a he-buffalo (Te.lex.)

- **ka_t.i**, furnace (trench)(Ta.)

  kad.i_ a chain; a hook; a link (G.); **kad.um** a bracelet, a ring (G.)

  kad.iyo [Hem. Des. kad.a-i-o = Skt. sthapati a mason] a bricklayer; a mason; kad.iyan.a, kad.iyen.a a woman of the bricklayer caste; a wife of a bricklayer (G.)

- **kol**, put.t.e **tiger, jackal** (Santali.); **kol** furnace, forge (Kuwi) [The jumping tiger: put.i, ‘to jump’; **put.a**, ‘calcining of metals’; thus rebus of glyph connotes, **put.a**: a furnace for calcining minerals].

- **kha~_g** (H.) kha_g (B.H.Ku.N.); **khagga** = **rhinoceros** (Pkt.); **kan:g**, portable brazier (B.)

- karat.i = **elephant** (Te.); **khara_di_** = turner (G.) cf. kara_d.i_ = a deep hollow in the bed of a river always filled with water; **karad.o, kara_d.i_** a goldsmith’s tool (G.lex.) Alternative: ibha + s’un.d. (elephant + trunk); rebus: ib ‘iron’ + sun.d. ‘furnace’

In addition to the four animals, the following glyph also occurs in the glyphs surrounding the seated person; another type of furnace!

ko_lamu = adornment (of a bride or an idol)(Te.lex.)

Glyphs:
d.opo ‘a very small mound or hillock’ (Santali)
dapal to strike each other, to fight (Santali)
Substantives:



Substantive: *hasani, hasanti, hasantike* a portable fire-place, a chafing dish (Ka.) *hasani_* a portable fire-place; *hasani_man.i* fire; *hasantika_* a portable fire-place; *hasanti_* id.; has to open, bloom, blow; to brighten up, or to clear up (Skt.)(Skt.lex.) cf.

Dholavira: beads (Courtesy ASI)

Beads **ha_s** necklace, beads (Pe.); *ha_c* id. (Mand.)(DEDR 2434).
pa_cam = eye of a needle, sewing, thread (Ta.); pa.c = eye of a needle; vulva (Ko.) [ve_dhya = to be pierced (Skt.)]

Die, dice: pa_sika, pa_s’akamu = a die used in games (Te.) pa_s'a (MBh.) pa_saka (Pali); pa_saga (Pkt.); pa~_so (Ku.); pa_sa_ (N.B.); pasa_, pa_sa_ game of dice (Or.); **pa_sa_** = die (H.P.); pha_sa_ (M.); pa_so (G.)

Substantive: *mandar* ‘the headman of a village’; *man.d.wari* ‘the Marwari caste of hindus’

Glyph: *asan man.d.ao* ‘to sit tailor-wise for a long time, to sit about with nothing to do; lazy; to lie down, as an animal in its lair’; *asan man.d.ao akanae, hokrho kan leka* ‘he has taken up his position as if he were a watchman’ (Santali)

man.d.ao ‘to occupy a new house, to take up one’s residence’; *man.d.hwa, man.d.ua, man.d.wa* ‘a temporary shed or booth erected on the occasion of a marriage’; *man.d.om* ‘a raised platform or scaffold’; *ma~r.om* ‘a platform, used to keep straw on, or from which to watch crops’ (Santali)

Glyph: *mandar.i, mandar.ia* ‘a drummer, drum musicians’ (Santali)

◄Betwixt the buffalo horns is a sheaf: *bhin.d.a* ‘iron lump’; *d.aeka kad.ru* ‘a buffalo having long, spreading horns with an upward turn’; *deko* ‘hindu’ or *t.aka* ‘silver’; tiger’s mane (*cu_l.ai*); bangles (*cu_l.a*); head-dress (*cu_d.a*); platform (*pin.d.a*), sheaf (*bhin.d.a*), deer (*bhindi*) [Reconstructing the broken portion of the seal, it is likely that a pair of sheaves and a pair of deer (antelopes) are depicted, the term for ‘two’ is: *bar, barea*; the rebus is: *bha_r* grain-parcher’s fireplace]
◄*mukut.* ‘ crest, diadem, turban’; rebus: *mukhia* ‘chief, principal, elder, leader’; *mukta* ‘a lump, mass, quantity’ (Santali), *mukhyud.u* ‘principal person’ (Telugu)
◄*badhi* ‘to ligature, to bandage, to splice, to join by successive rolls of a ligature’
◄*bad.hi* ‘a caste who work both in iron and wood’; *bat.hi* ‘furnace’

◄Reading: *cu_l.ai* ‘furnace’; *bhin.d.a* ‘iron lump (ore)’+ *bha_r, bhat.i* ‘furnace’ [iron furnace] of a *deko* ‘hindu’ or *t.aka* ‘silver’

Denoting a chief with horns, kut.am



m1431A m1431B

m1431C

m1431E 2805 Row of animals in file (a one-horned bull, an elephant and a rhinoceros from right); a gharial with a fish held in its jaw above the animals; a bird (?) at right. Pict-116: From R.—a person holding a vessel; a woman with a platter (?); a kneeling person with a staff in his hands facing the woman; a goat with its forelegs on a platform under a tree. [Or, two goats flanking a tree on a platform, with one antelope looking backwards?]

Pair of goats: **kin** = two (Santali); rebus: **ginna** = metal vessel (Te.)

A way to designate a chief of a village is to ligature a 'body' glyph with 'horns':

gra_maku_t.a, gra_maku_t.aka = chief of a village (Skt.lex.)

ku_t.i = a hat (turban) peg or stand; ku_t.a, gun.t.a = a peg (Ka.lex.) *gu_t.amu* a stake, a post; a peg, a tent pin (Te.lex.)

ku_t.a = horn (RV 10.102.4; AV 8.8.16; AitBr. 6.24; S'Br. 3.8.1.15; JBr.1.49.9; 50.1 (JAOS, 19, 114).

The glyph 'horns' also represents 'hammer' and suffixed to a_ra- the metal, *a_raku_t.a* 'brass':

a_raku_t.a = brass (Skt.) a_raku_t.a = arsenical copper[1] [Arthas'a_stra].

[1] **lodhra** = sulphurate of arsenic [Arthas'a_stra]. **Ta_la** = sulphurate of arsenic [Arthas'a_stra]

Hunter **lotha_, luddhaka;** otter **ludhir.o**; kite **luddhi_**

5550.**<u>Hunting</u>**: **lu- (lut-)** to beat game; **lup, lup gat.** part of the forest where the beaters are stationed (Pe.); **luh- (-t-)** to hunt with group of men (Kuwi)(DEDR 5190). **lubdha** covetous, greedy (Gaut.); hunter; **lubdhaka** hunter (MBh.); **luddha** greedy; **luddhaka** hunter (Pali); **luddha, loddha, lud.d.ha** greedy; hunter (Pkt.); **ludhir.o** otter (S.); **luddhi_** kite (L.); **lodha_** hunter (Or.); **lu_dhad.i_** <u>adj</u>. desirous (OG.)(CDIAL 11084). **vilo_bhati** allures (MBh.); **vilo_he_i** tempts (Pkt.); **bil.ohiba_, bilohiba_** to allure, charm (Or.)(CDIAL 11913). **lutstso** rascal (Kon.lex.) **<u>Covet</u>**: **lipsa_** desire to gain (MBh.); **liccha_** id. (Pkt.); **licch** rent paid by cultivators to landlord (L.)(CDIAL 11062). **lubh** be desirous (Skt.); **luhna_** to be infatuated, covet (H.); <u>aor</u>. **alubhat** (Dha_tup.)(CDIAL 11085). **lubhyati** is eager, is desirous (MBh.); **lubbhati** covets (Pali); **lubbha** (Pkt.); **lubev** to be vicious; **lubni, lublin** harlot (Gypsy); **lubha_na** to excite desire (H.); **lubha_vai** (OMarw.)(CDIAL 11086). **lo_bha** eager desire (Mn.); greed (Pali); **lo_ha** (Pkt.); **lo_** longing (L.); **loh** desire (A.); **loho** tenderness, affection (M.); **loba** desire, greed (Si.)(CDIAL 11147). **a_lo_bhi_t** <u>aor</u>. is desirous (Dha_tup.); **lo_hati** (Skt.); **lohan.** to desire, wish (L.)(CDIAL 11148). **lo_bhana** allurement (R.); greediness (Pali); **lohan** gentle persuasion by holding out false hopes (A.)(CDIAL 11149). **lo_bhin** covetous (BhP.);

Assyrian eru = copper; Sanskrit a_ra = copper

tutia = sulphate of copper, blue stone (Santali)

Substantive:

Monier-Williams' lexicon suggests that the root for *kastira* was *ka_ns* (to shine). There is a possibility that the root might have yielded kan:sa_ which means bronze or copper-tin alloy. (AV, 10.10.5: s'atam. kan:sa_h indicating the possible use of the metal as an exchange unit). Homeric times refer to tin along with ivory coming from India (V. Ball, 1880, A geologist's contribution to the History of Ancient India, in: *Journal of Royal Geological Society of Ireland*, Vol. 5, Part 3, 1879-89, Edinburgh, pp. 215-63). Ball reiterates Lassen's comment that the Greek word **kassiteros** was derived from kastira whereas Bevan feels (E.J. Rapson ed., 1921, *The Cambridge History of India*, Vol. I, Delhi, Indian Edn., S. Chand and Co., p. 351) that **kastira** was derived from kassiteros. Such a controversy also existed about **a_raku_t.a** in Sanskrit and oreichalkos in Greek ('mountain copper') which refer to brass. Pliny called this aurichalcum or golden copper (since brass is yellow) (Pliny, *Naturalis Historia*, 34.2 and 37.44).

Tin foils used in decoration: **kan:guri** tin foils used in decoration (Tu.lex.) **kasti_ra** tin (Skt.); kathi_r tin, pewter (H.); pewter (G.); kathi_l, kathi_la_ tin, pewter (H.); kahti_l tin; kathle~ large tin vessel (M.)

ku_t.ud.u = a stone-cutter (Te.lex.)

ku_t.akamu = mixture (Te.lex.)

ku_d.ali, ku_t.ami, ku_d.ika = junction (Te.lex.)

ku_t.a_mu = a hall in a house (Te.lex.)

ku_t.amu = the summit of a mountain (Te.lex.)

ku_t.uva = an army, a host; a collection; ku_t.uvamu_ka = an army consisting of untrained rabble, or irregular troops (Te.lex.)

ku_t.avarusalu = a necklace of four to eight thin gold chains hanging together (Te.lex.)

khun.t.iyo a man versed in witchcraft; a wizard (Used in Surat district)(G.) *khu~t.* a community, sect, society, division, clique, schism, stock; *khu~t.ren per.a kanako* 'they belong to the same stock'; *khur.pi* 'an apartment'

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lilohi_ greedy (OH.)(CDIAL 11150). **lo_bhyate_** is enticed (Skt.); **lo_bhayati** entices; **lo_bhijjam.ta** (Pkt.); **lu_bun** to feel desire (K.)(CDIAL 11152). cf. **vilo_bhayati** perplexes (Skt.)(CDIAL 11913a). **pralubdha** seduced (Mn.); **pralubhyati** is lustful (S'a_n:khGr..); **paluddha** seduced (Pali); **paludu** fond of, greedy; desire, passio (Si.)(CDIAL 8762). **pralo_bhayati** causes to lust after, enices (MBh.); **palo_bhe_ti** is greedy (Pali); **palo_bhe_di** tempts, entices (Pkt.); **polobanava_** to entice (Si.)(CDIAL 8769). **pr.a_nj- (pr.a_nc-)** to hunt, wander about in search of game (Pe.); **pla_mba (pla_mbi-)** to hunt, chase, seek; n. hunting, a hunt (Kui)(DEDR 4612). **Violence**: **lohar** lust, violence, oppression (P.)(CDIAL 11147). **a-lo_bha** the not going astray (of **ratha**) (AitBr.)(CDIAL 11147a). **lubh** agitate, disturb (Skt.); **lubdha** confused (AitBr.); **lujhan.u, luchan.u** to be agitated by grief or anger (S.); **lujjhan.** to quarrel (L.)(CDIAL 11084a).

lodhra, rodhra = the tree Symplocos Racemosa (it has yellow flowers , and the red powder scattered during the Holi1 festival is prepared from its bark) (Skt.)

(Santali) *kud.i* ‘house’ (Ta.); *kur.ia* ‘a small hut’ (Santali) *ku_t.t.a_l.i* associate, partner in trade (Ta.Ma.); *ku_t.uvu* heap, collection, army; *xo_n.d.rna_* to br beought into the company of (Kur.)(DEDR 1882).
kut.i ‘a piece’ (Santali)
kut.au, khut.au ‘to give on contract, to demand an account; pase tasrupatko kut.auali ‘perhaps he will demand an account of the produce.’

Glyph: *kut.haur.i* ‘a heap, a pile’ (Santali)
The dots on the device may thus connote copper metal ingots.

kut.am = a hammer (Santali) **ku_t.am** blacksmith's sledge, hammer (Ta.); heavy hammer (Ma.); **ku_t.a** (Skt.); **ku_d.a** (Pkt.)(DEDR App.29; <Poss. IE.) **ku_t.a** iron mallet (MBh. <Drav.); sledge hammer (Pali)(CDIAL 3391). **ayo_ku_t.a, ayaku_t.a** iron hammer (Pali); **yakul.a** sledge-hammer (Si.); **yavul.a (< ayo_ku_t.a)** (Si.)(CDIAL 592). **ku_t.ud.u** = a stone-cutter (Te.lex.) **ku_t.a** '...the most probable sense is hammer (So Bloomfield, *Zeitschrift der Deutschen Morgenlandischen Gesellschaft, 48, 546; Hymns of the Atharvaveda, 585*), which suits every passage adequately. The St. Petersburg Dictionary renders it 'horn', which is the sense accepted by Whitney (Tr. of the Atharvaveda, 505) for the Atharvaveda passage where it occurs. Geldner thinks that it means 'trap' (Vedischer Styudien 1.138; 2.7; cf. von Bradke, *Zeitschrift der Deutschen Morgenla_ndischen Gesselschaft, 46, 458;* Kuhn's *Zeitshrifvt, 34, 156;* Weber, *Indische Studien, 9, 222*).' [*Vedic Index*, I, pp. 176-177). cf. ku_t.u - nest (Ta.)(DEDR 1883). ku_t.a (Skt.); ku_d.a (Pkt.)[CDIAL 3391; cf. Burrow, *BSOAS* 34.550 (1971)]. kut.asi = a hammer (Santali.lex.) gu_t.amu = a wooden hammer, mallet; a stake, post; tent pin (Te.lex.) ku_t.a_ka = a hammer (Ka.lex.) *gu_t.amu* = a wooden hammer; mallet (Te.) **ku_t.a** a kind of implement; any prominence or projection; most excellent first; part of plough, ploughsare, body of a plough; an iron mallet (MBh 14.4.6)(Skt.lex.) *kut.t.uka* to pound (Ma.); *kut.t.*-to pound (Kod.); *kut.t.ayati* to pound, strike lightly (CDIAL 3241; DEDR 1671). *kot.t.u* to hammer; *kot.t.an-, kot.t.a_n-* mallet (Ta.); *kot.t.i* mallet (Ma.); kot.t.eti to pound (Pkt.); *kot.t.o* to pound, beat (Nahali)(CDIAL 3241; DEDR 2063).

ka_msako, ka_msiyo = a large sized comb (G.)

kan.i_ (Skt. kan.a ‘a grain’) a small particle; the facet of a diamond (G.) ka_n.i = a fraction of time or space; 1/20 of an estate (Ma.)(DEDR 1444).

ka_n~cavum = to seduce, to deceive, to copulate; kan~cani_ = a courtesan (G.) kasaban. = a courtesan, a whore, a harlot (G.) kasab = harlotry (G.)

ka_n~cad.o, ka_cin.d.o = a chameleon (G.)

kas’an.um, kasan.um (metath. kan.usa) = an ear of corn (G.) kaj = barley (Ko.); koj id. (To.); gajja (Pkt.)(DEDR 1106).

aduru ‘native metal’

era = woman; rebus: *era, eraka* ‘copper’ (Ka.)

Glyph: *ad.aru* twig (Tu.Ka.)(DEDR 67) The twigs worn on the seven standing persons may connote 7 copper (*era*) metal (*aduru*) furnaces: *kaccu* a kind of corslet worn by Indian women in ancient times (Ta.); bodice to confine the breast (Ma.); ?< *kan~cuka* (Skt.)(DEDR 1098) If the early form is *kan~cu* it may be rebus for: *kamsa, kasa* ‘bronze’. Hence, the seven robed persons may connote: metal bronze pit-furnaces (*aduru, kamsa*) cf. *khanta gad.a* a pit from which earth has been dug out (Santali)

ka_nta woman (Skt.)

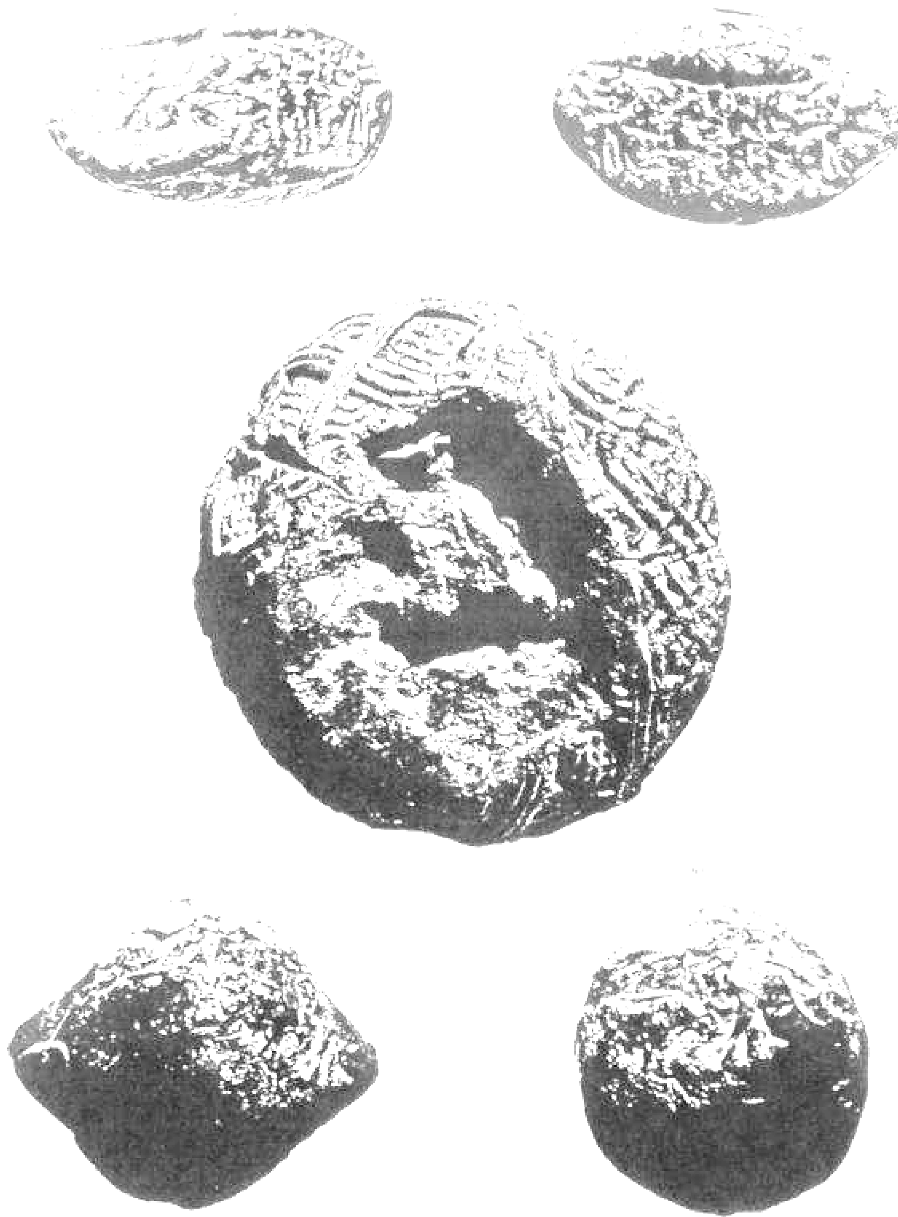
kasi = a castrated goat; **bhed.a kasi** = a wether; kasi = to geld, to castrate; kasi sadom = a gelding (Santali) khasi_, kha_si_, , khassi_ (Arabic) castration (G.) **sakam** = a veiled name for a goat (Santali) chaga = goat

(Skt.) aja, aja_ = goat (RV 7.18.19). **ceccai** he-goat (Pur-ana_. 286); sheep (Ja_n-a_. Pa_yi. 5,12); aries of the zodiac (Vita_n-a. Nalvin-ai. 9)(Ta.); tcutcu (Te.)(Ta.lex.) canju antelope (Kur.); a deer (Malt.); cacu deer (Skt.)(DEDR 2294). Synonyms are: basta, cha_ga, chagala. Goats and sheep were aja_vayah. Goatherd was ajapa_la (VS 30.11; Taitt.Br. 3.4.9.1) **jha_k** flock (M.); za_k crowd (A.); jha~_k flock (B.); jha_n:ka flock (Or.); jha~_k flock (H.)(CDIAL 5323). cha_lla_, cha_la_ pertaining to goats; m. flock of goats (L.)(CDIAL 5010). mer.ho, mer.o ram for sacrifice (N.); **mersa_g** ram (A. **-sa_g** <? cha_gya herd of goats (Skt.); **sa_ga_** flock of sheep or goats (M.)(CDIAL 5011); cf. saga denoting pha_tries or clans in Gond.) ca_kam < cha_ga he-goat (Ta.lex.) cha_ga he-goat (RV.); cha_gala coming from a goat (Sus'r.Pkt.); goat (R.Pkt.); ca_galiya goatherd (Pkt.); cha_wul he-goat (K.); cha_la goat (Pkt.); cha_wul, cha_wul^{u} (K.); cha_li_, cha_liya_ (Pkt.); cha_waj^{i} he-goat; ca_wali-pu_t kid (K.); cha_la_, ca_li_ goat (L.); ca_la_n of or belonging to a goat (L.)(CDIAL 5009). **chaga** goat (Skt.); **cha_ga** he-goat (RV.)(CDIAL 4958). **cherua_** goat (in general)(Bi.)(CDIAL 4962). **cana, ca~r.**a kid (Ash.); **can** new-born kid (Mj.); **ce~, co~** (Wg.); **chani** goat (Kho.); **cu_~** (Kt.); **chani_k, canar.** a male kid (Pas'.)(CDIAL 4961). **chor.u** goat; pl. **che_r.i** he-goat; **che_r.o** (K.); **che_r.o** (WPah.); **cher.i** goat (Or.)(CDIAL 4959). **chagala** goat (TS.); **chakala, chakalaka** (Pali); **chagalaga** (Nidoc.); **chagala, che_la, che_laga** (Pkt.); **cilo, cilo_** sheep (Ash.); **cula** lamb (Wg.); **cele_** goat (Tir.); **caloik** small kid (Shum.); **seya_l** goat (Wot..); **chalo** kid (Gaw.); **che_l** goat (Bshk.); **cha_l** (Tor.); **cael** (Mai.); **sa_li** (Gau.); **cha_li** (Sv.); **cha_l** newborn kid (Phal.); **che_li** goat (Phal.); **chal** kid (Sh.); **chali** she-goat (D..); **ce_li** she-goat; **cel, che_li** (K.); **chela_; cha_li_** (L.); **chela_** goat more than one-year old (P.); **chila_r, chila_ru_** young kid (P.); **che_lu_** kid; **cheur.u** (WPah.); **cheli** goat (B.); **chel.i** (Or.); **cher** (Bi.); **che_ri** (Bhoj.); **chela_, cheli_, chera_, cheri_** (H.); **cha_la_** pl. goat; **cha_li_** (OG.); **cha_l.i_** goat; (Kathiawar) **ca_l.u_** sheep; **ca_l.i_** she-goat (G.); **s'el.i_** goat; **s'el.d.u_~** (M.); **chelo** kid (S.); **chella_** (P.); **chelli_** she-goat; **chelli, chellu** kid (WPah.); **cirr.u_** he-goat (K.); **cherr.o** goat (WPah.); **cherr.u** male kid; **cher.ri** f. (WPah.); **s'erd.u_**~ goat (M.); **cha_gar** he-goat; **cha_gri_** f. (Bi.); **chagari_** goat (Aw.); **sa_gal.** goatskin, leather made from it (M.)(CDIAL 4963). **cha_gala** coming from a goat (Sus'r.); goat (R.); coming from a goat; goat (Pkt.); **cha_galiya** goatherd; **cha_la** goat; **cha_li_, cha_liya_** f. (Pkt.); cha_wul, cha_wulu he-goat; cha_waji; **ca_wali-pu_t** kid (K.); **cha_la, cha_li_** goat (L.); **cha_la_n** of or belonging to a goat (L.); **ca_li_** goat (L.)(CDIAL 5009). **cha_lla_** pertaining to goats; flock of goats; **cha_la_** (L.)(CDIAL 5910). **sa_ga_** flock of sheep or goats (M.)(CDIAL 5011).

Glyph: *kasa, kassa* blood (Kuwi); *kasavva* wet, damp (Pkt.); *kasi* to ooze, trickle, flow (Ka.)(DEDR 1091). [cf. glyph of menstruating woman; *kar (kat.)* to give birth to (Pa.)(DEDR 1109) cf. *gad.a* mine]

kasad.o a waistband of silver or gold (G)
bin: kancur slough of snake (G.)

Substantive (spit): *ka_ng* to become hot (Nk.); *ka.ng* heat of fire or son; *ka.ko.l* a spit (*ko.l* stick) (Ko.); *xa_xar* fire, anger (Br.); *kandu* boiler, cooking utensil, oven (Skt.)(CDIAL 2726; DEDR 1458). *ka_vali, ka_vale* a plate or pan for firing or baking; *ka_valige* frying pan (Ka.); *ka_vali, ka_voli* id. (Tu.)(DEDR 1488). *kakor, kan:kar, ka_nkar* ‘small stones, gravel’ (Santali)



Hero stands before stag attacked by lion, another lion (crossing) fights bull; Seal impressions: Chagar bazar; BM 129370; Wiseman, opcit, 1962, Pl. 32a-b; Lump bearing four impressions of the same seal. Clay. Seal Impressions from Nineveh; all impressions shown on Plate 32c, d and e are from Kuyunjik (X.15; H.17): BM 127390; Wisema, opcit, 1962, Pl. 32c; Large jar stopper bearing two seal impressions, one rolled round three-quarters of the edge. Trees-pattern with crossed lines between; guilloche with hachuring. Baked clay. L.A.A.A. XX, 1933, Pl. LXV; Jamdat Nasr period. BM 127389; Pl. 32d-e; Bulbous shaped clay sealing, pierced for string attachment. Two bulls, back to back. Baked clay (L.A.A.A. XVIII,1930, p. 82, pl. XXII, 10.

"Baluchistan: Copper occurs widely in Baluchistan…The Chagai region has three areas of occurrence: Ras Koh in Kharan and Lar Koh, both with chrysocolla (oxide ore with 36% copper content) as the ore-type, and the areas of Robat Koh, Malik-iSiahKoh and Saindak Koh wehre there is carbonate of copper in some veins (Buller 1906: 127-29). The extensive presence of slag can be inferred from the fact that at Robat a small fort was built with copper slag as the principal building material. If Buller's record is to be believed, preindustrial copper smelting was practiced in Chagai till the last quarter of the 19th century. On the other hand, some slag specimens from the Sandak mines of the area are dated around 3500-3000 BCE." [Dilip K. Chakrabarti and Nayanjot Lahiri, 1996, *Copper and its alloys in ancient India*, Delhi, Munshiram Manoharlal, p.13; Buller, H., 196, *Baluchistan District Gazettee Series IV and IVA. Bolan and Chagai,* Karachi]

The fort built of copper slag evokes the R.gvedic description of pura a_yasi_(metallic forts).

अच्छिद्रा सूनो सहसो नो अद्य स्तोतृभ्यो मित्रमहः शर्म यच्छ ।

अग्ने गृणन्तम् अंहस उरुष्योर्जो नपात् पूर्भिर् आयसीभिः ॥

(nodha_ gautama) 1.058.08 Son of strength, favourably-shining Agni, grant to your worshipper on this occasion uninterrupted felicity; offspring of food, preserve him who praises you from sin with guards of metal.

तस्मै तवस्यम् अनु दायि सत्रेन्द्राय देवेभिर् अर्णसातौ ।

प्रति यद् अस्य वज्रम् बाह्वोर् धुर् हत्वी दस्यून् पुर आयसीर् नि तारीत् ॥

(gr.tsamada (a_n:girasa s'aunahotra pas'ca_d) bha_rgava s'aunaka) 2.020.08 Vigour has been perpetually imparted to Indra by his worshippers (with oblations), for the sake of obtaining rain; for which purpose they have placed the thunderbolt in his hands, wherewith,having slain the Dasyus, he has destroyed their metal cities.

गर्भे नु सन्न् अन्व् एषाम् अवेदम् अहं देवानां जनिमानि विश्वा ।

शतम् मा पुर आयसीर् अरक्षन्न् अध श्येनो जवसा निर् अदीयम् ॥

(va_madeva gautama) 4.027.01 Being still in the germ, I have known all the births of these divinities in their order; a hundred bodies of metal confined me, but as a hawk I came forth with speed. [i.e., until the sage comprehended the differences between the body and soul, and learned that soul was unconfined, he was subject to repeated births; but in this stage he acquired divine knowledge, and burst through the bonds with the force and celeriy of a hawk from its nest; va_madeva s'yena ru_pam a_stha_ya garbha_d yogena nihsr.tah = Va_madeva, having assumed the form of a hawk, came forth from the womb by the power of Yoga (Ni_timan~jari)].

m273 [The membrane hanging down the neck of the antelope may be **a_ram** (Tamil) which connotes **arsenic** which when alloyed with copper produces brass, **a_ra-ku_t.a**; the mid-rib of leaf depicted on this seal may be **rir.** which is cognate with **ri_l** (copper, brass or bronze or perhaps, **rit = 'tin'**).



cf. *rks.a* male antelope (Skt.) **r.s'a, r.s'as** = the male of a species of antelope (AV 4.4.7); r.s'ya, r.s.ya = the male of a species of antelope, the painted or white-footed antelope (RV 8.4.10; AV 5.14.3; VS; AitBr.); r.s'yaka = having the colour of or looking like the white-footed antelope (R.)(Skt.) r.s.a the male of a species of antelope (AV 4.4.7); (Latin: alces); r.s.ya = r.s.a (RV 8.4.10: r.s.yo na tr.s.yan r.s.ya_khyo mr.ga iva); r.s.yada = a pit for catching antelope (RV 10.39.8)(Vedic.lex.) r.s.ya = male deer; r.s.yada (Vedic.lex.) rojjha = a kind of deer (Pkt.); rojhu, rojha the whiote-footed or painted antelope (S.); rojh (P.); rojh (H.G.); ro_hia a kind of deer (Pkt.)(CDIAL 10870). rohita = reddish (RV)(CDIAL 10866).

r.s.u = flame, glow (RV 10.6.1; 1.127.10; 5.25.1; 8.71.15)(Vedic.lex.)

A homonym which may also connote r.s. : spear

risa_ = a particular animal (AV); **risi** = eagle, bird of prey (Ku.)(CDIAL 10744)**.**

A silver axe was found in Northern Afghanistan (c. 1900-1750 BCE); this axe had the motif of an eagle with two heads confronting a lion. Metropolitan Museum of Art [Ed. Time-Life Books, 1987: 156].

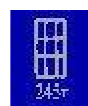
If the lexeme to represent this pictograh of an antelope is **r.s'** or **r.s**. it is hypothesised that **rit** [see the following lexemes] may be interpreted as a copper additive, **'tin or arsenic or zinc'** to create the alloy bronze.

re~d. = headless body, corpse (Ku.); ren.t.a_ = obstinate, perverse (Or.)(CDIAL 10815).

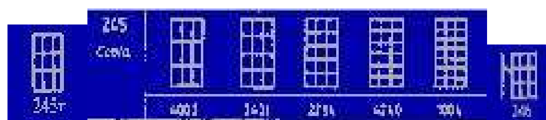
re~t = a file (Santali.lex.) reta = to saw, as when cutting with knife, sword etc., to draw backwards and push forwards, as a fiddle bow; reto reto = imitative of the sound produced when sawing wood (Santali.lex.)

Chequered square with nine rectangles

A number of signs appear in duplicated pairs: for example, Sign 245 occurs in 70 pairs.



(nine squares in a rectangle or a chequered-rectangle) [cf. **lo** = nine; **loha** = metal, ore (Santali.lex.)]



Signs 245, 246 + variants

The duplications of divided rectangles are apparently not duplicated alphabets or syllables.



Animals have bound feet and surround a square object on which the person stands. Fig. 89; Susa, stamp seal from the Gulf, Teheran Museum, MDAI, 43, no. 1718; a person, naked and thin, has a stylised head shaped like a narrow arch with indentations to mark the nose and mouth.



Two bull heads emanating from a chequered square; two persons drinking; altar and sun; bull in the lower register. Fig. 99; Failaka; no. 174 impression.

A person flanked by two bulls, each standing atop a chequered square. Fig. 100; Failaka no. 83 impression.



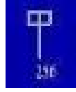




Entwined serpent in the middle; two antelopes standing atop a chequered rectangle; two bulls in lower register. Fig. 101; Failaka no. 82.

Bulls; antelopes; person; chequered square; trough? Fig. 104; Failaka; no. 89 impression.

Altin-depe; metal (silver) seal from southern Turkmenistan with the pictograph of a ligatured animal with three heads. Indian influence is seen in the three-headed ligature which occurs on the silver seal from Altin-depe. That this object is in silver metal is significant. The existence of silver and copper seals (apart from the use of copper plates as inscribed objects) denotes the importance attached to and value conveyed conveyed by the message on the seal.

**Needle, probe, bodkin; arrow**: **xala_** pin (of bamboo, wood, or iron)(A.); **sala_i_** pin (in spinning yarn)(L.); **sal.a_i_** needle in shuttle, spindle (P.); needle, probe, bodkin (H.); coarse needle, short stick (Bi.); **sara_i** iron or wooden poker (Mth.); **sal.a_, sal.ai_, sal.i_** pin, spike, skewer (M.)(CDIAL 12349). **salay** spike (K.); **s'ala_ka_** arrow (Pali)(CDIAL 12349).

Substantive: **d.ha_l.ako** = a large metal ingot; d.ha_l.aki_ = a metal heated and poured into a mould; a solid piece of metal; an ingot (G.) d.ha_l.avum = to fuse; to melt; to cast (a metal)(G.) *dul* 'to cast metal in a mould' (Santali) *d.ha_l.u* cast, mould; way, style (Ka.); d.ha_l.a (M.); d.a_l.a lustre, radiance; beauty, loveliness, gracefulness (Ka.); d.ha_l.a (M.); d.a_lu, d.a_l.u, da_l.u (Te.)(Ka.lex.) d.ha_lan. to melt, to mould, to form, to figure, to shape, to coin; d.hala_i_, d.hala_un. the price of casting, pouring, melting; d.halna_, d.halja_n.a_ to be cast, to be poured out (as wine into a cup); d.halwa_i_ pouring out, melting; the price of pouring out, melting out (P.lex.)

Glyph: **d.a_l., d.a_l.i_, d.a_l.um** [Dh.Des. d.a_l, d.a_li_ = Hem. Des. d.a_li_ = Skt. s'a_kha_ a branch of a tree] a branch of a tree (G.)

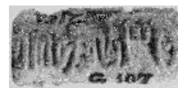
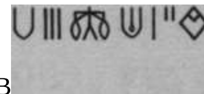
Glyph: d.ha_l.iyum = adj. sloping, incliding; d.ha_l. = a slope; the inclination of a plane (G.)

Glyph: d.ha_l.iyo = a water-course, an aqueduct (G.)

Glyph: *dol* 'the shaft of an arrow, an arrow' (Santali)



Person kneeling under a tree with branches, facing a tiger. [*Chanhudaro Excavations*, Pl. LI, 18] 6118

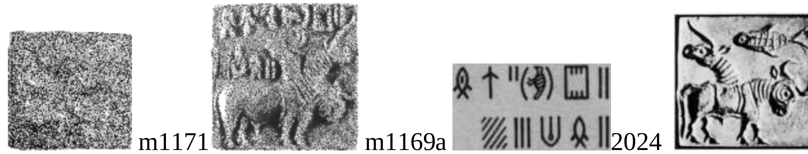
 h177A  h177B  4316 Pict-115: From R.—a person standing under an ornamental arch; a kneeling adorant; a ram with long curving horns.

The leftmost glyph on Epigraph 6118 is a thorny tree:

sekra a hindu caste who work in brass and bell metal; *sekrec, sekrec sekrec* to clink, applied to the sound produced by metallic objects coming into contact with each other (Santali) **sekyaka_ra** (EI 12; BL) a brazier; engraver; cf. **sen:kra_** goldsmith (B.); **sega_n.a** official designation of uncertain import (Chamba inscr.)(IEG, p.308).

sekra a small tree, zizyphus rugosa; *sekrec* a large forest tree, lagerstremia parviflora (Santali)

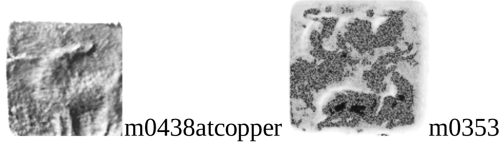
Composite animal, antelope looking back


m1171 m1169a 2024 m0298).


m0271 Goat-antelope with horns turned backwards and a short tail


2554 Banawali13a Lothal123A

Lothal123B m0505At m0505Bt 1702


m0438atcopper m0353

kamar ‘looking back’; thus, an antelope looking backwards is: *melh* ‘goat’*kamar* (*melukka kamar* ‘copper-smith’); a tiger looking backwards is: *kol* ’tiger’ *kamar* (kolhe ‘smelters of iron’ + smith)

2234.Cultivator: kamata the cultivation which the owner carries on with his own stock, but by the labour of another who is paid for his work (Ka.Te.); ka_mat (Upper India); kamatiga, kammatiga the man employed to cultivate with the farming stock of the owner (Ka.)(Ka.lex.)

kamba, kambha = a post, a pillar (Ka.Te.Tu.Ta.Ma.); a mast (Ta.Ma.Ka.lex.)

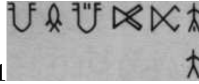
kambi = wire; an iron band (Ka.Ta.Te.M.Tu.); kammi = the iron tire of a carriage wheel; a wire, a bar; the line or border at the end of a cloth (Te.lex.)

kambi = a shoot, a branch or joint of a bamboo (Ka.lex.)

kambi = a club, a mace (Ka.lex.)

kammera_ku, kamme_era_ku = a kind of betel leaf darker and more pungent than the common one (Te.lex.)

Animal and glyph groups

m0304AC Pict-812420 Animals surrounding represent a variety of furnaces.

◀*barha* 'boar', *bhar* 'oven'; *badhia* 'castrated boar'; *bad.hoe* 'carpenter'
◀*kad.ru* 'buffalo'; *khan.d.ar.an:, khan.d.run:* 'pit (furnace)'

[**sal** = buffalo; e.g. kollan- sal = smith's workshop]

sal = Indian Gaur, *Bos Gaurus* (or, *Gavaeus Gaurus*). Now extinct in the Santal Paragnas. Also called bir kad.a, forest buffalo. *sal bitkil*, the cow of the Gaur; *sal sakwa*, a horn made from the horn of the Gaur (Santali); saili, sakil (Mun.d.ari)(Santali.lex.Bodding) *sail* = the Indian Gaur of bison, *Gavaeus Gaurus* (Mundari.lex.)

sal = v. open a smithy, work a smithy; open a beer-shop, a sugar-cane press*; ale manjhi tolare kamarko sal akata* = the blacksmiths have a smithy in that part of the village where our headman has his house; *teken kamarko sal akata* = the blacksmiths are working to-day (have started their forge)(Santali.lex.Bodding) t.an:kas'a_la_ mint (Skt.); t.aksa_l, t.aksa_r (N.); t.a~ksa_l, t.a~_ks_l. t.eksa_l (B.); t.aksa_r (Bhoj.); t.aksa_l, t.aksa_r (H.); t.a~ksa_l. (G.); t.a~_ksa_l (M.); t.aksa_l.i_ mint-master (G.); t.a_ksa_lya_ (M.)(CDIAL 5434). pan.ya article for sale (S'Br.); pan.iya to be sold or bought (Pali); article for trade (Pali); pan.n.a, pan.ia (Pkt.); pan.yas'a_la_ shop (Skt.Pkt.)(CDIAL 7719-7720).

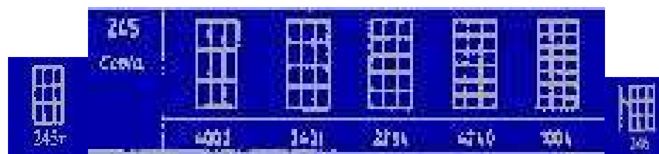
Wheel-right, weaver, trough, young buffalo

ks.attr. attendant, door-keeper (AV.); khattar attendant (Pali)(CDIAL 3647). Charioteer: ks.attr. charioteer (VS.); **khattar** charioteer (Pali); kha_ti_ member of a caste of wheelwrights (H.)(CDIAL 3647). kattiri < khatri (G.) dialect of gujara_ti and the spoken language of the Saura_s.t.ras in the Tamil country (G.Madu.D. 74)(Ta.lex.) 1546.Weavers: kha_tri_ member of a caste of Hindu weavers (G.); khat.ri_ washerman, dyer (S.)(CDIAL 3647).

kat.ra_, kat.r.a_ = piece of ground enclosed and inhabited, market town, market, suburb (H.); kam.t.i_ = space near a village, ground near a mountain, neighbour- hood (Pkt.); kan.t.a = boudary of a village (Skt.); ka~_t.he = arable land near the edge of a hill (M.); ka_t.h = border, edge (M.)

kar.ru, kad.ru_ buffalo calf (male or female)(Kur.); kat.a_ male of sheep or goat, he-buffalo (Ta.); male of cattle, young and vigorous; child, young person (Ma.)(DEDR 1123). kat.a_ri = young, plump bull, heifer (Ta.); **kat.r.a_** = young buffalo (Ku.); kat.iya_ = buffalo heifer (H.); kat.hr.a_ young buffalo bull (H.)

kar.a_ (Kur.) kat.a_r (P.), kat.ha_ri (Tu.), kat.t.a_ri_ = knife (Pkt.) karttr.ka_ = knife, dagger (Skt.) mus.-kat.a_ri_ = dagger (Gaw.) ka_tr = scissors (L.)(IL 1674)

Signs 245, 246 + variants

kat.ra_, kat.r.a_ = piece of ground enclosed and inhabited, market town, market, suburb (H.); kam.t.i_ = space near a village, ground near a mountain, neighbour- hood (Pkt.); kan.t.a = boudary of a village (Skt.); ka~_t.he = arable land near the edge of a hill (M.); ka_t.h = border, edge (M.) cf. **kat.ai** shop, bazaar, market (Ta.); **kat.a** market (Ma.)(DEDR 1142).

kat.hra_ = a tub, a platter, a trough; kat.a_ram = cauldron (Ta.); kat.a_ram, kit.a_ram cauldron, boiler (Ma.); kad.a_ya, kad.a_yi large round boiler of copper, bell-metal, or iron (Ka.); kad.a.ya large copper vessel (Kod.); kad.a_~yi boiler of bell-metal (Tu.); **kat.a_ha** boiler, cauldron, saucepan (Skt.)(CDIAL 2638);DEDR App. 22) **kat.hli**, **kat.li** a small wooden cup for holding oil (Santali) **kat.oro** a shallow cup (G.); **kat.ora_** (Skt.)

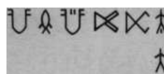
kat.hiya_ro a wood-cutter; one whose business is to split or sell fire-wood; kat.hlo household furniture(G.)

◄*ve_r..am* 'elephant' *sun.d.* 'an elephant's trunk'; *ve_l.a* 'fire sacrifice (yajn~a), *sund* 'a pit (furnace)' cf. *ku~n.d.* 'a pit'

◄*kamsa kol* 'jumping tiger'; *kamsa kol* 'bronze furnace'

Purpose of the seal m0304



m0304AC  2420

Reading: five furnace (**cu_l.a**)-types: **ra_n:ga** 'buffalo'; **ran: ka** 'tin' ,**badhia** 'boar'; **bar.ae** 'blacksmith'; **ibha** 'elephant'; **ib** 'iron'; **kol** 'tiger'; **kol** 'alloy of five metals'; **mlekh** 'antelope'; **milakkhu** 'copper'

The 'standing person' may be a sign, a part of the epigraph.

◄*ten:go, ten:gon* = to stand, upright position; *tetenic* 'a weaver'; ten:goc = responsible person; *t.en:goc* = a small axe; *t.a_n:gi* stone chisel

If this glyph of 'a standing person' (*ten:go*) is a stone chisel, it is likely that the other signs represent other tools of this *bad.hoe*, 'artisan', this owner of the seal. If so, the signs are used to represent two types of possessions:

27. through glyphs 'furnaces and other major tools-of-trade' ; and
28. through signs 'tools and weapons'.

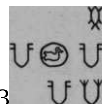
Depiction of a pannier on a one-horned bull

What is being depicted orthographically is the waist-zone of the one-horned bull:

Glyph: **kamarasa_la** = waist-zone, belt (Te.) kammaru = the loins, the waist (Ka.Te.M.); kamara (H.); kammarubanda = a leather waist band, belt (Ka.H.) kammaru = a waistband, belt (Te.) kammarincu = to cover (Te.) kamari = a woman's girdle (Te.) komor = the loins; komor kat.hi = an ornament made of shells, resembling the tail of a tortoise, tied round the waist and sticking out behind worn by men sometimes when dancing (Santali) kambra = a blanket (Santali)

an.d.ia = rich; **adi maran: an.d.ia kanae** = he is very rich (Santali) **a_d.hya** = abounding in, rich in; rich, wealthy; arrogance (Ka.Te.); a_d.hyata_ = arrogance (M.) an.d.i = a termination of respect, equivalent to sir (Te.) ad.d.ha, ad.d.haka rich (Pali); ad.d.ha (Pkt.) ; a_l.hiya wealth (Pali); ar.ewa_ id. (H.)(CDIAL 1108). **a_d.hiyo** = a merchant who keeps a large go-down of cotton; **a_t.a** = a heap (G.) at.arvu = thickness,

crowdedness; at.artti, at.arcci = closeness, crowdedness (Ta.); a.ta_ra = widespread, as the branches of a tree (Tu.); **ad.aru** = to increase; excess (Te.); at.t.ad.i, at.t.ava, et.t.am = packs of cut or fencing branches/bushes collected and piled up on bullock carts (Te.)(DEDR 84). **a_d.atiyo** = an agent; a_d.ata = agency, brokerage; Arabic. a_reyat 'borrowing' (G.) **taraku** = brokerage, fee, commission to a middleman (Ta.); brokerage (Ma.); taragu, taragari = broker (Te.)(DEDR 3090).


Mohenjodaro MIC, Pl. CVI,93

1093

kor.o Has. Syn. of ged.e, ger.e Nag. A domesticated duck, *anas domestica* (Mundari.lex.) ged.e = a duck (Santali.lex.) ka_ran.d.avamu = a sort of duck (Te.lex.) ka_ran.d.ava = a duck (G.lex.) Rebus: **got.i_** ' a lump of silver' (G.) [Note the ingot-shaped circle enclosing the 'duck' glyph]; **kod.** artisan's workshop (G.)

Middle line of epigraph 1093: Middle glyph: **kor.o** 'duck'; substantive, rebus: **kod.** 'artisan's workshop' [alternative: **got.i_** 'silver ingot']with two kan.d.kanka 'rim of pot', i.e. two altars or furnaces.

Top line: **ken.t.a** 'carp fish'; rebus: **ke~r.e~** bell-metal, brass

Bottom line: **kan.d. kanka** 'copper furnace' + two **pasra** 'sprout'; **pajhar.** 'furnaces'.

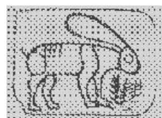
ko_lamu = a boat (Te.lex.) ko_l = a raft, a float (Ka.lex.) **kola** = boat (Skt.lex.)
kolimi 'furnace' (Te.) **kol** 'metal, alloy of metals' (Ta.)

Substantive: *korn:ga* 'a Hindu caste of wood turners' (Santali)

Glyph: *kuran:ga* a deer in general (Skt.) *krusu* (pl. *kruska*), *kruhu* (pl. *kruhka*) barking deer, jungle sheep (Kui); *kurhu* antelope; *kruhu* (pl. kruska); *kluhu* antelope (Kuwi)(DEDR 1785). *karam.gi_* antelope (OG.); *kuran:ga* antelope (MBh.Pali); kulan:ga (Skt.); *kulun:ga* (TS.); *kurun:ga* (Pali); *kuram.ga* (Pkt.); *kuran:g* (P.); *kura~g* (G.); *kura~gi_*, *kura~gn.i_* f. (G.); *kurun:ga* (Si.); *kiran:gu* the elk russa aristotelis (Si.)(CDIAL 3320). *kuran:g* light chestnut colour (Kho.)(CDIAL 3321).

kuri antelope (Pa.); *kurs* deer, antelope (Go.); *kruhu*, *krusu* barking deer, jungle sheep (Kui); *kluhu*, *kruhu*, *kurhu* antelope (Kuwi); kuran:ga a species of antelope, antelope or deer in general (Skt.)(DEDR 1785).

Hare


Pict-42

h095


h332C

4885

h333A h333B 4421

m0534At m0534Bt 3304

[Duplicates in m0535 to m0542; m01491 to m01494].

h334A h334B

4423 h335a h335B 4425

h336A h336B 4424

Glyph: **kulai** = a hare; kulai mandal = the three rupees given to the bride's father as the price of his daughter; kulai hopon = a leveret; kulai ape sede dar.keda = the hare has run in your direction, i.e. it is for you to reply to what has been said (Santali.lex.)

Hare s'as'a, saso, sasalum = hare, rabbit (G.); soso, sosea_ (Kon:kan.i) s'a_sa (Skt.) sword or knife [s'as = to cut (Skt.)]

kulhi = the village street (Santali.lex.)

kulhu = a Hindu caste, mostly oil men (Santali.lex.)
kulhu = an oil press (Santali.lex.)

kol 'metal, alloys of metal'; furnace. **kol, kolhe** (iron-smelter)(Santali.lex.) kol, kollan-, kollar = blacksmith (Ta.lex.) [kollulaive_r-kan.alla_r: nait.ata. na_t.t.up.); mitiyulaikkollan- mur-iot.ir.r.an-n-a: perumpa_)(Ta.lex.)



m1179 2606 Human-faced markhor with long wavy horns, with neck-bands and a short tail.



m1180a . 1303 Human-faced markhor [*maru_ka* 'a deer' (Skt.); *marai* sambar, Indian elk (Ta.)(DEDR 4724)]

antelope: *kuran:ga* a deer in general (Skt.); Rebus: *korn:ga* 'a Hindu caste of wood turners'
tiger: *kol* (furnace)
Glyph: *vahur.o* young bullock (S.); *vohur.* heifer (L.); *vahar.*, *vahir.* heifer (P.);(CDIAL 11459). *paghaia d.an:gra* a pack bullock (Santali)
Substantive (soldier, trader) **va_karan-** 'soldier' (Ta.) *vahoro, vohharo*: *vahoro, voro* (Hem. Des. *vohharo* = Skt. *ma_gadha* a mixed tribe, a bard) a trader, a *bora_*;
bull: *bailo* (*bal* 'iron ore'); *d.an:gra* 'bull'; *d.han:gra* 'blacksmith'
Jointed animals: *san:gad.a* (*kan:gar* 'furnace')

Crab glyphs (including ligatures)

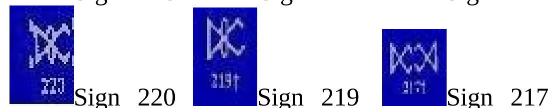


Sign 53 Sign 362 Sign 363

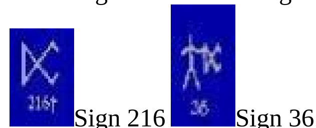
Sign 364 Sign 251



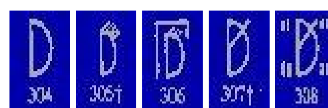
Sign 223 Sign 222 Sign 221



Sign 220 Sign 219 Sign 217



Sign 216 Sign 36



kamt.ao, kapt.ao = to grab, to grasp, to seize, as a hawk a bird (Santali.lex.) **khablao** = to grab, clutch, grip (Santali)



m0312 Persons vaulting over a water-buffalo. **kambal.a** = a buffalo race (Ka.); **kambula, kambul.a** = a buffalo race in a rice field (Tu.)(DEDR 1239). Khamd.a, khamd.ao = to gambol, to sport, to flirt (Santali)

Glyph: *ka_mal.iyo* a hairy kind of caterpillar (G.) cf. *kamal*. blanket (G.); *kambal* (Skt.)
Substantive: *ka_mal.i_* a writslet made of glass (G.)

cf. kambiga = a mace bearer (Ka.lex.) [In this context, the spoked-wheel-fellies glyph on Seal h598D, together with an inscription containing the 'crab', 'fig-leaf' glyph gains significance as **put.hi**, a copper ingot]. **kabar.a** = a apparatus; **kat.h kabar.a** = wood work; khu_h da_ kabar.a_ = the machinery of a well (P.lex.) **kampa_d.aga** = teak, te_gu (Ka.lex.) **kaba_d.amu** = a bullock-load of grass or straw, the load being distributed on both sides (Te.lex.) kaba_d.a = a bullock- or horse-load of grass, wood etc. (Ka.M.Te.); kava_d.a (Te.);

kava_t.a.mi (Ta.); kaba_d.i = a person who brings and sells kaba_d.as (Ka.lex.)

kapt.a kapt.i = to quarrel and pull or strike each other (Santali.lex.) **khablao** = to grab, clutch, grip (Santali)

ka~wa~r.i, ka~ori = to implore, to beg earnestly, to entreat; ka~oarikaten metamkana on.d.e alom calaka = I beg you not to go there (Santali.lex.)

[Glyph reinforcement on side b of tablet h180: a crab issuing forth; crab (**kamat.ha**)]:

Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)

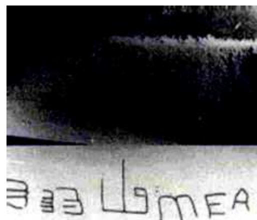
Substantive: *sal* workshop (Santali) **s'a_la** = workshop (Skt.); **s'a_lika** belonging go a house; a village of artificers, of artisans; a weaver; a toll, tax (Skt.lex.)

Combined animal glyphs



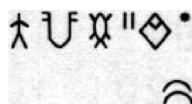
m1135 2140 Pict-50

Composite animal: features of an ox and a rhinoceros facing the standard device.



A votive pottery vessel inscribed in 'post-harappan' script, found at Bet Dwaraka.

These signs could be compared with signs on other epigraphs of the civilization. The fourth sign from left could be a stylized version of the 'water-carrier' sign.



Kalibangan121A, B 8302

copper/bronze rod with epigraph.

kan.d.kankha 'copper furnace'
ten:go 'standing' ; *ten:goc* 'axe'
Substantive: *bad.hoe* 'a carpenter, worker in wood'; *badhoria* 'expert in working in wood'(Santali)
Glyph: *badhor.* 'a species of fish with many bones' (Santali)

Glyph: *tapor* 'a hod, cover of a cart'. Substantive: *trapu* 'tin' (Skt.)
Double, *bar*; rebus: *bhara* 'oven'; i.e. tin furnce.

Alternative:
kot.u 'curved, bent (Ta.) *kor.va* sickle (Kol.) i.e. two sickles.
go_t.u state of being full grown, but hard; *go_t.ad.ike* a hard, inferior kind of arecanut (Ka.)(DEDR 2202).
kod. 'place where artisans work'

Rice in husk. Glyph: *val* (pl. valkul) grain of unhusked rice (Kol.); *val bi.am* husked rice (Kol.); val paddy (Nk.); *valku* pl. paddy, rice (Nk.); *valci* paddy, husked rice, boiled rice, food (Ta.); *var-r-u* grain of boiled rice from which the water is strained off (Ma.); *vad.lu* unhusked rice, paddy (Te.)(DEDR 5287)

Substantive: *bali* = iron ore, iron stone sand; the Kol iron smelters wash the ore from the sand in the river bed; *balgada* 'sand carried down by a flow of water' (Santali)

Alternative:

kon.e an inner apartment or chamber (Ka.); a room apartment (Tu.); *ko_nar.* shed for hens (Go.)(DEDR 2211).
Glyph: *duht.i* double; *doht.a* having two houses in different places; a town and country residences (Santali)

A 'wheel' glyph with two short linear strokes on the upper register, may , similary connote: *gad.i* 'wheel'; *gad., gad.h* resident of hill fort with two residences *doht.a*

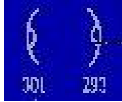
k*o_n., ko_n.a, ko_na* corner (Ka.); *ko_ne* corner (Ga.); *ko_na* id. (Kond.a); *kon.a* corner, angle (Skt.)(DEDR 2209; CDIAL 3504).

Stylized antelope glyph

An antelope glyph evolves into a sign which is inscribed on a tin ingot found at Haifa.



m0398

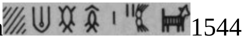
2308 Second sign on text 2308 (eye): 

kharen a pupil of eye (Santali) *ka~rec* one eyed, blind of one eye (Santali)

ke~r.e~ ko~r.e~ an aboriginal tribe who work in brass and bell-metal; *ker.e sen:gel* fire in a pit, as the Koles burn charcoal (Santali)

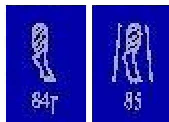
m00783118

m10972313

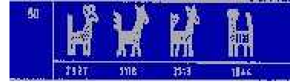
m0039a1544

[The second sign on text 1544: glyph: eyebrows *kut.i* (Santali); *kut.hi* 'furnace for smelting iron ore']

m0290 2527 Dog (?) or antelope shown on text 2527: *kut* 'dog'; Rebus: *kut.asi* 'hammer' (possession, together with homestead + *kut.hi* 'furnace': teeth of comb + dog + thigh: *bakher kut.i*) + *dhar.a* 'underside of thigh'; *dharao*, *dhard.harao* 'to pour, to pour into a mould' (Santali) *dad.ko* a lump (G.) Tiger: *kul, kol* 'smithy'.

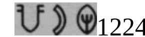
**sa~_pro** = thigh (of animals)(N.); sa~_pr.i_ = leg of a goat or sheep killed for meat (Ku.)

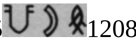
Bowl sambal.ige (Ka.), **sa~_par.** = cavity formed by two bowls placed together (G.)(IL 3564)

V050

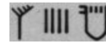
Glyph: ku_ran- dog (Ta.); ku_ra id. (Tu.)(DEDR 1901).

Substantive: *kuruku* 'whiteness'; *kuru* brilliancy (Ta.); *kuro* silver (Kol.Nk.Go.); *khura* (Nk.)(DEDR 1782).

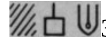
m0917 1224

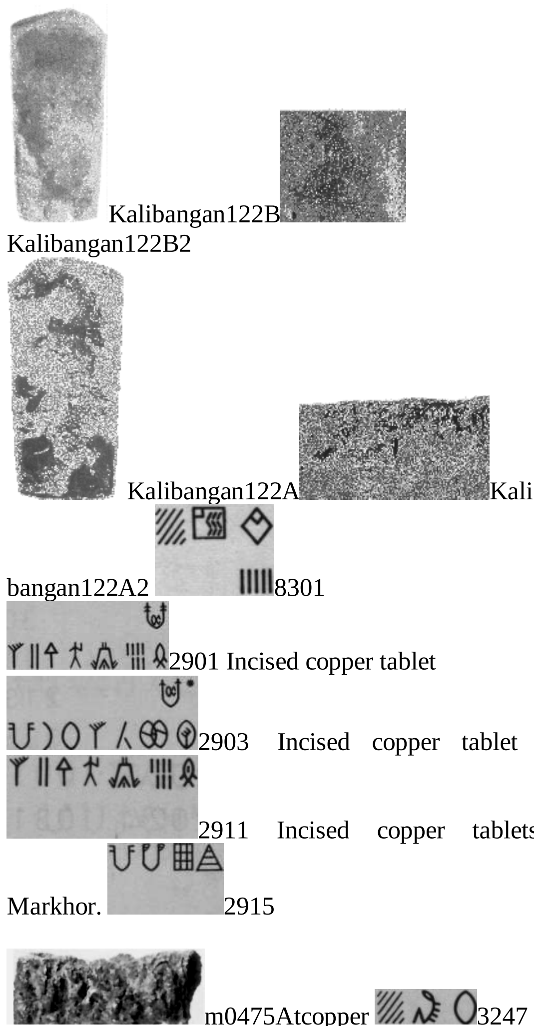
m09451208

m0420A1si m0420A2si

3236

m0421A1si m0421A2si

3237



Kalibangan122B Kalibangan122B2

Kalibangan122A Kalibangan122A2 8301

2901 Incised copper tablet

2903 Incised copper tablet

2911 Incised copper tablets. Markhor. 2915

m0475Atcopper 3247



Openwork stamp seals, late 3rd–early 2nd millennium B.C.

Central Asia (Bactria-Margiana) Copper alloy; 3 5/8 in. (9.2 cm)

http://www.metmuseum.org/toah/ho/03/nc/ho_1984.4.htm

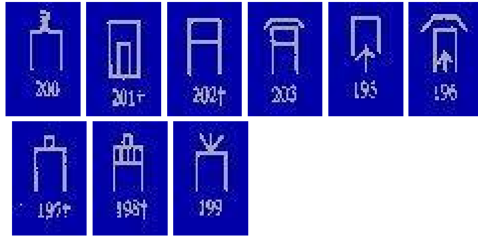
‘Openwork copper or bronze stamp seals, often called "compartmented" seals, were cast in both geometric and figural patterns in Bactria-Margiana and are distinctive to that region. This copper-alloy example represents a male figure dressed in a short kilt and mountain boots with upturned toes. If his horned headdress is similar in meaning to examples found in Mesopotamia and Iran, the figure may be divine. The arrow-shaped forms emerging from his shoulders and under his arm may represent snakes or lightning bolts.’



Stele of Ushumgal, 2900–2600 BCE; Early Dynastic periods I–II Umma (probably), southern Mesopotamia

Alabaster (gypsum); H. 8.8 in. (22.4 cm) ‘Among the earliest written documents from Mesopotamia are records of land sales or grants, often carved in stone with associated images, perhaps for public display. The Sumerian inscription on this stele records a transaction involving three fields, three houses, and some livestock. Ushumgal, a priest of the god Shara, and his daughter are the central figures of the transaction, but because of the archaic script, it is not clear whether Ushumgal is buying, selling, or granting these properties. The smaller figures along the sides very likely represent witnesses to the transaction. In addition to their importance to understanding the development of writing, these early land documents provide evidence that land could be privately owned in early Mesopotamia, although a significant proportion was still owned by the gods and managed by their temples. While this development is not surprising from a modern point of view, in antiquity it represented a momentous conceptual and cultural shift.’ http://www.metmuseum.org/collections/view1.asp?dep=3&full=0&item=58%2E29

The glyph in front of Ushumgal is similar to signs on epigraphs of Sarasvati Civilization.



On the Ushumgal stele, three fields and three houses, are marked by three horizontal lines and three vertical lines; on Sign 202 there is one horizontal line; this could denote ‘one field’. Similarly Sign 197 or Sign 201 may denote one house; and Sign 198 may denote one large house + 4 small houses. A comparable glyph is sometimes found on gold *ta_li (man:gal.asu_tra)* designs used in Tamilnadu.

Tiger, three ligatured tigers, tiger looking back

kol metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.



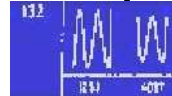
m1168 2360 Tiger with long (zebu's) horns?

> **kollan**-ulai-k-**ku_t.am** blacksmith's workshop, smithy; Text 2360: lid: dakhna; rebus: d.a_kin.i_, 'sword'; rim of jar: kan.d. kanka, 'gold furnace'.
>
> **ku_t.am** 'horns'; **ku_t.am** 'workshop'
>
> **pen.i_** 'griddle, frying pan' (Ta.)
> **bene** 'cork' (Ka.)

Merchant of timber

*la_d.i_* a lass; a lassie; a bride; *la_d.li_* a woman bred up in the midst of fondness and indulgence (G.)
Glyph: *lat.* To subjugate, conquer (Santali) *lad.avum* to quarrel; *lad.a_yi_*, *lad.ha_yi_* a fight; wrestling, a combat; a contest, a brawl, an affray; an altercation (G.)
Glyph: *lar.i* having the hair tied in a knot at one side of the head instead of at the back (Santali) *lat.* A lock of hair; tangled hair; *lat.iya_m* pl. locks of hair; tangled hair (G.)
lotta a hollow, a ravine, pit (Ka.); dent, depression, small pit or hollow; *loddi* a valley (Te.); loddi id. (Go.)(DEDR 5197).
lot.iyo a section of Muhammadans; a Vohara_; a Bora_ (G.) *lod.hum* iron; a razor; a mason's tool; *lod.ha_m* a carpenter's iron tools (G.)

la_d. [Skt. *la_t.a*, fr. Skt. *ra_s.t.ra* name of a country prob. Ka_t.hia_wa_d.a] an individual of a particular section among Wa_nia_s, merchants (G.)
lad.vaiyo a warrior; a wrester, a combatant (G.) *lar.hai* to fight, to quarrel; *lar.an:kar* fighting, quarrelsome (Santali)
lat. to take possession of, subjugate, conquer; *lat.ak* hindrance, intervention(Santali)
*la_t.i_* a place where timber or fuel is stored and sold (G.)
lat. a string of pearls (G.)
lat.t.ho a lump of gold; the axle of a cart-wheel (G.)
lat. to take possession of (Santali)



V132 *lod.ha* a wave, a swing; *lot.* to shake (Skt.)(G.)
lot.avum to roll over and over; to turn and toss about (G.)





1253 h461

4037 [*ten:go* 'standing, axe'; *kan.d.kankha* 'rim of pot, copper furnace'; *pan.e* 'ficus, quarry'; *loddi* 'wave, valley'; *kot.u* 'curved, bent (Ta.) Substantive: *ko.t.e* palace (Kod.); *kot.a* hamlet (Malt.)(DEDR 2058) *ko_d.i* outlet of tank (Te.)(DEDR 2197); alternative: *kor.va* sickle (Kol.) i.e. two sickles.]



V294 *got.i_* a lump of silver (G.)

Tigers, stone fort, rampart



h180A



h180B

4304 Tablet in bas-relief h180a Pict-106: Nude female figure upside down with thighs drawn apart and crab (?) issuing from her womb[10]; two tigers standing face to face rearing on their hindlegs at L. Pict-92: Man armed with a sickle-shaped weapon on his right hand and a cakra (?) on his left hand, facing

a seated woman with disheveled hair and upraised arms.

The term, **bharan**, evokes two semantic interpretations: 1) an asterism represented by pudendum muliebre and 'bearing in the womb'; 2) act of filling as in creating mixed alloys.A semant. Expansion occurs in the following lexemes: bhart = a mixed metal of copper and lead; bhart-i_ya_ = a barzier, worker in metal; bhat., bhra_s.t.ra = oven, furnace; bari_ = blacksmith; bha_ran. = to bring out from a kiln

bharan.i_ 7th asterism (figured by pudendum muliebre)(AV.); **bharan.a** bearing in womb (RV.); **bhara** carrying, booty (RV.)[**bhr.** bear]

Mixed Alloys or bharan

To make agricultural implements and utensils carpenter's tools or weapons are referred to: **svadhiti** (RV 3.8.6); **va_s'i_** (RV 10.53.10; 101; 10); **paras'u** (RV 1.30.4; 3.53.22; 6.3.4; 7.104.21; 10.28.8). The tools and weapons were made of **as'man** (stone) and **ayas** (metal). Ja_taka teles refer to 18 guilds of workers and to work of metalsmith who manufactures agricultural implements, weapons of war in various metals like copper, brass, bronze and iron. [RL Mehta, 1939, *Pre-Buddhist India*, Bombay, p. 199; cf. Cowell, FB, ed., *Ja_takas*, I, p. 343; III, p.93; IV, p. 105; V, p.282]. Jaina Pras'na Vya_karan.a lists 18 guilds which includes bronze-smiths (Ka_m.syaka_ra) (*Pras'na Vya_karan.a*, pp. 193-194). Jaina texts describe the processes used by a metalsmith: smelting of ore, forging and casting techniques. [JC Sikdar, 1964, *Studies in the Bhagavati Sutra*, Muzaffarpur, p. 268; JC Sikdar, 1947, *Jaina Canon*, Bombay, p. 187). Pa_n.ini refers to the tools and implements made of copper and other metals used by a metal smith. [Pa_n.ini's *As.t.a_dhya_yi*, 2nd edn., Varanasi, 1963, p. 234]. Patan~jali comments on Pa_n.ini's su_tra (**ji_vika_rthe ca_pan.ye**: v.3) in Maha_bha_s.ya and notes that Mauryas had made images of Gods for obtaining gold. This may be a reference to metal images. (Kielhorn, ed., *Mah_bha_s.ya*, vol. II, Bombay, 1906, p. 429]. Pa_n.ini uses the term **lohita_yasa** (5.4.94) for copper.

"...the question arises that if **ayas** stood for copper in R.gvedic times why it was called lohayas during the later Vedic age. The answer lies in the semantic changes of the word ayas resulting from the technological developments in the society. In early Vedic age metallurgy was in its primitive stage and varieties of baser metal were not known. The words *hiran.ya* and *rajata* denoted precious metals and *ayasa* denoted baser metals. Thus theoretically *ayas* was a general name for baser metal. But as copper was the popular metal for use, ayas practically meant copper. By later Vedic age when other varieties of baser metal such as iron, tin, and lead came to be known, the copper was called *lohayas* in order to distinguish it from other metals. As bronze was a mixed metal, combining both copper and tin and having a distinct colour, it was probably simply called ayas during the later vedic times. This is suggested by a passage of Va_jasneyi Sam.hita_ (XVIII.13) where ayas has been mentioned in contrast with *hiran.ya*, *loha*, *s'ya_ma*, *si_sa* and *trapu*. Such semantic changes are not strange because we know that the word *loha* which definitely stood for copper during the later Vedic age became popular name for iron in historical times." (DN Tripathi, 'Ayas' in the R.gveda--A note, in: Vibha Tripathi, 1998, *Archaeometallurgy in India*, Delhi, Sharada Publishing House, pp. 347-348).

Loha may be interpreted as copper because of the red colour associated with it. [cf. Taittiri_ya Sam.hita_ 4.7.5; Keith 1914, I: 381; Weber 1871: 404]. **Si_sa** and **trapu** connote lead and tin in Atharva Veda (Si_sa: AV 12.2.1, 20; trapu: AV 11.3.8). In Atharva Veda, both **loha** and **ta_mra** are used. (AV 11.3.7-8; Griffith 1896, II:61; Whitney 1905, II:61; Roth and Whitney 1924: 247). Atharva Veda (AV 18.3.17) uses the term, **kasye**, to denote bell metal or bronze; this is apparently concordant with the lexeme, **kam.sa** (Skt.) Tin is called **taua**, zinc is **jasada** and lead is **sisaga** in Jaina literature (Jain, 1947). Cilppatika_ram (V.24-39; VRR Dikshitar, 1939, *The Silappadikaram*, Milford: 111) mentions coppersmiths of Puha_r city; and furnaces for metal smelting, copper and bronze workers in Madura (Dikshitar 1939: 206). Pali rendering of trapu is **tipu** (*Vinaya*, Parrivara Patha VI.2).

Bharant (lit. bearing) is used in the plural in Pan~cavim.s'a Bra_hman.a (18.10.8). Sa_yan.a interprets this as 'the warrior caste' (bharata_m – **bharan.am kurvata_m ks.atriya_n.a_m**). Weber notes this as a reference to the Bharata-s. (*Indische Studien*, 10.28.n.2) In the Punjab, the mixed alloys were generally called, **bharat** (5 copper, 4 zinc and 1 tin). In Bengal, an alloy called **bharan** or **toul** was created by adding some brass or zinc into pure bronze. Sometimes lead was added to make it soft.

bar.ae-bur.ui = to oil and comb someone's hair (Mundari.lex.) va_raki_ra = a small comb (Skt.); va_ruka = to comb (Ma.); va_r = to comb as hair (Ta.); ba_can.ige = a comb (Ka.); ba_grka_ wooden comb worn by boys and girls (Kur.)(DEDR 5357). **ba_ran.e**, ba_rane, ba_rpan.i = a comb; ba_runi = to comb the hair (Tu.lex.)

dosta = zinc (Santali) **jasada** = zinc (Jaina Pali)

Rebus: **jot** = a pair, match, fellow; **bhage jotkin napam akata** = they are a capital pair (Santali) cf. **kin** = two (Santali); rebus: **ginna** = metal vessel (Te.) [Note glyphs of bulls and antelopes in pairs.]

Rebus: **jasu** = a spy, a detective, an informer, an accomplice; *guti ho~ ja~ha~tis ja~ha~tiske jasuka* = servants sometimes become accomplices (thieves) (Santali)

Glyph of disheveled hair may be connoted by lexemes: **salae sapae** = untangled, combed out, hair hanging loose (Santali.lex.)



Rebus: **sa_la** = workshop (B.) **sapap** = arms, tools, implements, instruments, gear; sendra reak sapap = gear for hunting; raj mistri reak sapap = the tools of a mason; kurta rorok reak sapap = the tools with which to sew a coat (Santali)

sal = wedge joining the parts of a solid cart wheel (Santali.lex.) sa_l = a joint that fitsa socket; sa_lvi_ a maker of joints, a carpenter (G.lex.) s'al.i_ [Skt. s'ala_ka_] a chip; a covert term for a quarter of a rupee, used by merchants in secret conversation (so called because a quarter of a rupee is represented by (i) in writing which resembles a s'al.i_ or chip (G.lex.) sal mon:garu = a very large and heavy mallet used to hammer together the three parts of a saga_r.i wheel so as to drive in the dowels (sal) tightly (Mundari.lex.)

Pict103 Horned (female with breasts hanging down?) person with a tail and bovine legs standing near a tree fisting a horned tiger rearing on its hindlegs. 1357

go_ti = a woman (Te.lex.)

got.i_ = a lump of silver (G.lex.)

*d.okri_* 'old woman' (Hi.); *dokri, dukri* 'old woman' (Kurku); *d.okra_* 'aged, old' (Hi.Mar.) *d.okro* an old man; *d.okri_* an old woman (G.) t.on:ku < d.on:ku (Te.) crookedness (Ta.); d.on:ku id. (Ka.)(Ta.lex.) dhokar.a decrepit, hanging down (of breasts)(Or.); duk hunched up, hump of camel (Kho.); dok[u] hump-backed (K.); d.okro, d.okhro old man (Ku.); d.okra_ old, decrepit (B.); decrepit (H.); old man (M.)(CDIAL 5567). d.osa, d.usa having a maimed or bent body (from disease etc.)(K.)(CDIAL 5563).

Substantive: *dhokra* 'metal worker'

Pictorial motifs of spearing or killing

koru, kori, korru to kill (Kor.)

Rebus: ***koru*** 'a bar of metal' (Tu.)



Limestone wall plaque from Susa (After J. Boese, 1971, *Almesopotamische Weihplatten: Eine sumerische Denkmalsgattung des 3, Jahrtausends v. Chr.*, Berlin/New York: de Gruyter,: Taf: XXIV.21]. This plaque shows, on the lower register a person plunging a dagger at a tiger which seems to have subdued a bull. Both the tiger and bull are motifs which recur on inscribed objects of Bharatiya civilization. The top register shows a scene with two seated persons receiving some vase; one on the left is playing on a lute. The plaque is perhaps related to a temple which stood on the Acropole.

A parallel pictorial motif occurs in Crete on an ornamented dagger. A sword, found in the palace of Mallia and dated to the Middle Minoan period (2000-1600 BC), is an example of the extraordinary skill of the Cretan metalworker in casting bronze. The hilt of the sword is of gold-plated ivory and crystal. A dagger blade found in the Lasithi plain, dating about 1800 BCE (Metropolitan Museum of Art), is the earliest known predecessor of ornamented dagger blades from Mycenae. It is engraved with two spirited scenes: a fight between two bulls and a man spearing a boar.

kun.d.ali = a snake (Te.) kun.d.a = a pit (Tu.) [Note the snake on side m0492C of the tablet]

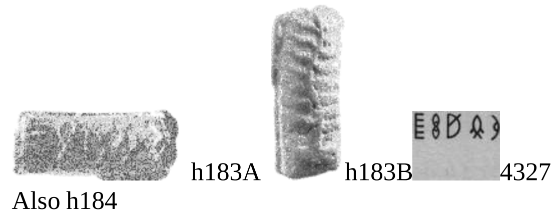
Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)
kudra than 'the place where the Pargana bon:ga is worshipped'; *kod.ra* 'scraper'

*ko_la_* flying fish, exocaetus, garfish, belone (Ta.); *ko_la_n, ko_la_-mi_n, ko_li* needle-fish (Ma.)(DEDR 2241).

kor.am breast (Santali) *kol* breast, bosom (H.); *kaula_, kola_, kauli_* id., lap (H.);; *ku_l* belly, stomach, womb (Kur.); *ku_las* offspring, descendant (Kur.); *ko_li* abdomen (Malt.); *xo_l* womb, offspring, entrails, woof, weft (Br.)(CDIAL 3607; DEDR 2244)
kot.t.e small stick (Kol.Nk.)(DEDR 2071).*ko_l* stick (Ta.); staff (Ma.Ka.); *ko_lu* (Tu.)(DEDR 2237).
go_ti woman (Te.); *ko_tai* woman (beautiful as a garland)(Ta.)(DEDR 2214). *kon.d.e* tassels of sash (Kod.); *gon.d.e* topknot, tassel, cluster (Te.); *go~d.a_* cluster, tuft (M.)(DEDR 2081). *ko_lam* beauty, form, shape (Ta.); form, figure ; idol, beauty (Ma.); *ko_la* the d.and.ur dance (i.e. stick dance)(Go.)(DEDR 2240).
kon.d.i sting of a scorpion (Ka.Tu.)(DEDR 2080).
*got.a_* a garment with clusters of flowers woven in it; *got.a_kor* [+ *kor* a border] a border of a garment having clusters of flowers woven in it; got.iyum a piece of cloth made use of in making up a turban to give it a round shape (G.) *go_t.u* embroidery, lace (Tu.); *go~_t.u* an ornamental appendage to the border of a cloth, fringe, hem, edging (Te.); *got.* Hem of garment; *got.a_* edging of gold lace (H.)(DEDR 2201).
got.o a nosegay (G.)
go~r.e~ a pannier, a bag slung across a bullock's back, one on either side (Santali)
gote, *gotle* wry, oblique (Santali)
kot.iyum a canoe, a small boat (G.) *ko_l, ko_lam* raft, float (Ta.): *ko_lam* raft (Ma.); *ko_l* raft, float (Ka.); *ko_lamu* (Te.); *kola* boat, raft (Skt.); *kulla* id. (Pkt.)(DEDR 2238).

*kot.i_* the largest bead in a rosary from which the counting begins (G.)[cf. the trefoil glyph on the *angarkha* worn by the priest -- statuette]

Tree

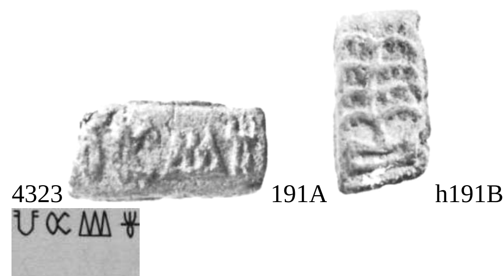

h183A h183B 4327
Also h184

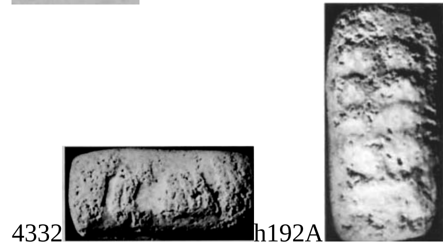

h187A h187B
5282 Pict-75: Tree, generally within a railing or on a platform.


h188A

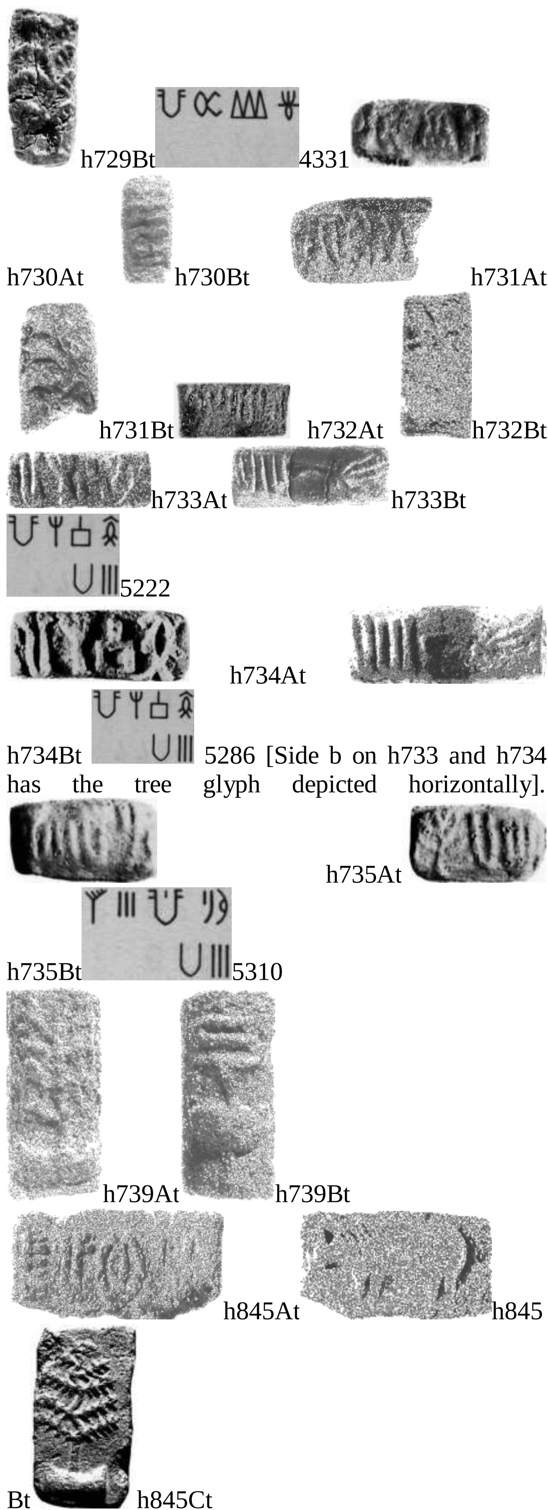

h188B 4325


h190A h190B


4323 191A h191B


4332 h192A


h192B
5340
h193A
h193B
5332
h194A
h194B
h195A
h195B
h
718At
h718Bt
4328
h719At
h719Bt
4326
h720At
h720Bt
h722At
h722Bt
h723At
h723Bt
h724At
h724Bt
5255
h725At
h725Bt
h726At
h727Bt
h727At
h727Bt
h728At
h728Bt



h729Bt 4331

h730At h730Bt h731At

h731Bt h732At h732Bt

h733At h733Bt

5222

h734At

h734Bt 5286 [Side b on h733 and h734 has the tree glyph depicted horizontally].

h735At

h735Bt 5310

h739At h739Bt

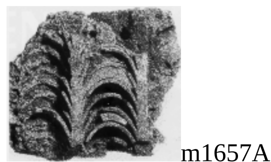
h845At h845

Bt h845Ct



m1430At

[The tree is in the middle]. Person throwing a spear at a buffalo and placing one foot on its head; three persons standing near a tree at the centre.



m1657A

steatite  m1657B steatite both sides of a steatite ornament; contains identical pictographs of a 'tree'.



m0500at m0500bt

2604

[**kut.haru** = tree; **ku_d.ali** = cross-roads]. **kut.i**, ‘smelting furnace’ (Mundari.lex.).

khun.t.ut = a stump of a tree left in the ground; gun.d.ra = a stump (Santali.lex.) **kut.amu** = a tree (Te.lex.)

kut.am = a hammer (Santali)

kut.i, kut.hi, kut.a, kut.ha a tree (Kaus'.); **kud.a** tree (Pkt.); **kur.a_** tree; **kar.ek** tree, oak (Pas;.)(CDIAL 3228). **kut.ha, kut.a** (Ka.), kudal (Go.) kudar. (Go.) **kut.ha_ra**, kut.ha, kut.aka = a tree (Skt.lex.) **kut., kurun:** = stump of a tree (Bond.a); khut. = id. (Or.)

dare = a tree, a plant (Santali.lex.) da_ru = piece of wood (MBh.); in RV. Nom. Da_ru (gen. Drun.ah, dro_h); da_ru = wood (PaliPkt.); do_r = tree (Pas'.); da_r = tree, wood (Gaw.); dar = timber, firewood, gallows (Kho.); da_r = log (K.); timber (WPah.Ku.N.H.)(CDIAL 6298).
dal.amu = a leaf, a shoot, a blade, a petal (Te.lex.) dal, dal. = a leaf (G.lex.) dala = leaf, petal (MBh.Pal.Pkt.); dal. (G.M.)(CDIAL 6214).

dala_i = village headman, head constable, family title of a class of s'u_dras (Or.); dal.vai, dal.vi_ = general (M.); dalai, dalui = a surname (B.)(CDIAL 6218). dal, dal. = an army, a force; a corps; a division of an army; a troop (G.lex.) dala = party, band (Skt.); army (Pkt.); dalo = party, group (Sh.); dal. d.al = company, party (K.); dal. D.al = army (L.); dal = army, swarm (P.); dal.a = army, band, flock (Or.); dara = army (Oaw.); dal = troop, company (H.); dal. = army (G.M.); d.al, d.a_l, da_l = party, section, herd of horses (Kho.)(CDIAL 6215). **dar.e** = strength, power, might, ability; to overcome, to vanquish, to conquer (Santali.lex.) [In the cultural tradition of Bha_rata, Skanda, Ka_rttikeya is the commander of the armed forces of the deva-s, dal.vi_]

The glyptic synonym for the word, **da_r** (tree) could be:

da_la = skin (esp. a whole skin) of sheep, goat, etc. (K.)(CDIAL 6308). [Note the dotted circle shown on the skin of a woman in terracotta].
d.a_r, d.a_l = herd (of deer), flock (of birds), flight (of locusts)(L.)(CDIAL 6292).

ruk birik, ruk birit trees (Santali)

<u>**Image: hole**</u>: **rukhi** an atom, a grain, a shred, a particle (Santali) **ro_ka** a hole, an aperture, a cavity (Ka.); **ruks.a** a star (Ka.)(Ka.lex.) **ro_kam** a hole (Skt.lex.) <u>**Image: particle, atom**</u>: **rukhi** an atom, a grain, a shred (Santali.lex.) **rok** to pierce, to perforate, to sew, to pin, to butt, to gore (Santali.lex.) **ruka, rukna** a chisel (Mu.); **rukhna** (Sadani)(Mu.lex.) **uruvu-tal** to pierce through, penetrate, as an arrow, a needle (**Tiruva_ca. 28,2**) (Ta.) (Ta.lex.)

ruka = a carpenter's chisel; **kund ruka** = a chisel for cutting out round holes, mainly the axle holes of a wheel; **chumni ruka** = a small chisel; **roka d.at.a** = the front teeth, two above, to below (Santali.lex.)

Fire-pit

kun.d.i-a = village headman; leader of a village (Pkt.lex.)

kun.d.i_ crooked (of buffalo's horns)(L.); kun.d.a_ a bullock whose horns have been turned (L.)(CDIAL 3260). khun.d.ha_ blunt (P.)(CDIAL 3899). khun.d.a_ blunt, crooked-horned (L.); khu~r.o blunt (N.); khun.d.a_ (H.); khun.d.i_ crooked-horned (P.)(CDIAL 3901). <u>Image: crooked horned</u>: khud.d.a_ blunt, crooked horned; khud.d.ha_ blunt (L.)(CDIAL 3897). khu~t.ehra_ plough with small worn block (Bi.)(CDIAL 3900). khun.d.a_ blunt, crooked horned (L.); khun.d.i_ crooked-horned (P.); khu~r.o blunt (N.); khun.d.a_ (H.)(CDIAL 3901). kun.d.a_ a bullock whose horns have been turned (Punjabi.lex.) <u>Image: ox with blunt horns; lazy</u>: ku_t.i_ hornless (?Br.); ku_r..ai-k-kompan- ox with blunt horns (Ta.); ku_r..aiyan- short, stunted person (Ta.); ku_r..ai that which is short (Ta.)(DEDR 1914). ko_n.d.a hornless (Kal.); ko_n.d.a_ bald (Pas'.);

kon.t.ha crippled (Pali)(CDIAL 3508). ku_t.a hornless (Skt.)(CDIAL 3396). kun.d.hi_ crooked-horned (of buffalo)(P.); kun.t.ha blunt (MBh.)(CDIAL 3261).

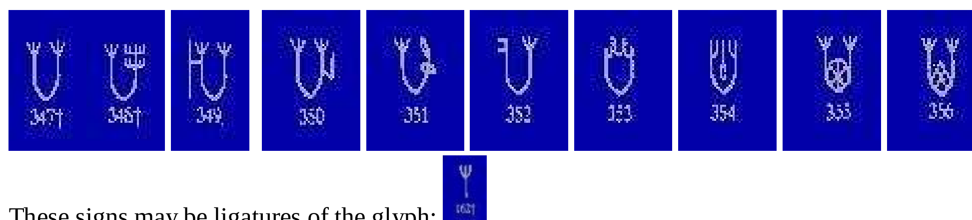
gun.d.amu fire-pit; (Inscr.) a hollow or pit in the dry bed of a stream (Te.); **gunta** pit, hollow, depression (Te.); **gun.d.i** deep (Kol.); **ghun.d.ik** id. (Nk.); **gut.t.a** pool (Pa.); **kun.t.a** pool (Go.); **gut.a** hollow in the ground, pit (Kond.a); **kut.t.** a large pit (Kui); **gutomi** pit (Kuwi); **kun.d.i** pond (Kuwi); **kun.d.a-** round hole in the ground (for water or sacred fire), pit, well, spring (Skt.); **kut.t.am** depth, pond (Ta.); **kun.t.u** depth, pond, manure-pit (Ta.); **kun.t.am, kun.t.u** what is hollow and deep, pit (Ma.); **kun.d.a, kon.d.a, kun.t.e** pit, pool, pond (Ka.); **kun.d.i** pit; **kun.d.itere** manure-pit (Kod..); **kun.d.a** pit (Tu.); **kon.d.a** pit (Tu.); **kun.t.a, gun.t.a** pond, pit (Te.)(DEDR 1669). **kut.t.ai** pool, small pond (Ta.)(DEDR 1669). [cf. cognate etyma connoting secrecy (treasure): **gun.pu, gumbu** profundity, solemnity, secrecy, depth (Ka.); **gumpu** secret, concealed (Tu.)(DEDR 1669).] **xon.d.xa_, xo~_r.xa_** deep; a pit, abyss (Kur.); **qond.e** deep, low lands (Malt.)(DEDR 2082). **khutt** depression in earth or wall, hollow eyes (P.); **khutti_** hole in the ground in a game with cowries (P.)(CDIAL 13655). **kud.e** a rat's hole (Tu.); **kod.e** to hollow, excavate (Ka.); **kud.ute** palm of the hand, esp. hollowed or held as a cup (Ka.)(DEDR 1660).

<u>**Reservoir used in irrigation**</u>: **go~r.a_** reservoir used in irrigation (H.)(CDIAL 3264). **kun.t.am** pool, tank; deep cavity, pit (Ta.Ma.); **kun.t.u** depth (**Man.i. 8,8**); id. (Ma.); **kun.t.u-ni_r** sea, as being deep (**Na_lat.i, 94**)(Ta.lex.) **kum.d.a**, **kom.d.a** pool (Pkt.); **kun.d.a** basin of water, pit (MBh.); **kunu** whirlpool (S.); **kun.d.** pool (WPah.); **kunnu** cistern for washing clothes in (WPah.); **ku~_d.** tub (H.); **ku~d.** pool, well (M.)(CDIAL 3264). **ku~d.** = basin (G.) **kun.d.a** a basin; a round hole in the ground for receiving water; a pond or well consecrated to a deity (G.) **kun.d.a** [Skt. a basin] **khu~idaha, khu~idak** = a deep pit full of water (Santali)

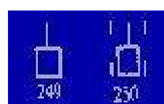
kun.d.a = a reseroir of water surrounded with steps to go down to the bottom (G.Skt.) (G.lex.)

kun.d.= the opening in the nave or hub of a wheel to admit the axle; **kund ruka** = a gouge, a chisel with which circular holes are made in wood; sagar. kund = the opening in the nave of a wheel to receive the axle (Santali.lex.)

[The four signs of spoked wheels on a ten-sign sign-board of Dholavira may relate to this lexeme: the workshop of a carver, turner – on a variety of materials]. Cf. kun.dum, kun.di_, kun.d.a_l.i_ = a circle or ring [Skt. kun.d.ala] (G.lex.) <u>Turner</u>:



These signs may be ligatures of the glyph:
Thus, Sign 347 may be a duplication of this basic glyph in Sign 162.
Sign 348 is a ligature with a duplicated harrow glyph.



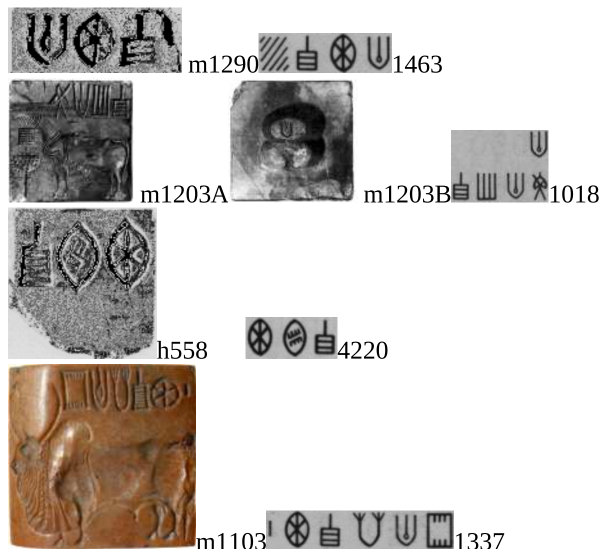
Signs 249, 250 The circumgraph of four short linear strokes has been interpreted as **kod.a** = 4 **gan.d.a**. The glyph on Sign 249 can thus be a product made in or a mineral processed in a

kod., ‘artisan’s workshop’. That this may connote a mineral is also reinforced by the appearance of this glyph on two tin ingots found at Haifa. Could this Sign 249 connote, ‘tin’?

khapar = tin, a metal once used largely to make ornaments, but now out of use (Santali) [cf. metath. **kharva-** a nidhi of Kubera].

Other lexemes connoting tin: **ran:ku, trapu, tagara**

Sign 252 occurs on the following seals and tablets with epigraphs:



kot.i, ‘flag’ (Ta.) The first sign from the right on Text 4304. Phonetic determinant; rebus: **kut.hi** furnace for smelting iron ore.

The second sign from right, could be rebus: **kut.ha_ra** ‘armourer, writer’ (Skt.); glyph: **ku_t.a_ga_ra** = an apartment on the top of a house (Ka.lex.) **kot.t.amu, kot.t.a_mu** = a pentroofed shed or room; name of an ancient principality in the Telugu country (Te.lex.) kot.t.amu = a stable for cattle or horses (Te.lex.) khundr.i = a small room made by partitioning of a house (Santali.lex.)

kamat.amu = portable furnace (Te.); rebus: **kamar kidin** = a small species of scorpion (Santali)

Phut.aka = a kind of cloth (Skt.) Put.a-go_si = a small cloth to cover the privities (Ka.); put.a = a cover, covering (Ka.)

Glyph: *kahli* ‘twig’

xo_xa_ behind, afterwards (Kur.); xo_xna_ to throw behind one's back (Kur.) qoq behind, at the back (Malt.)(CDIAL 2182). kok to raise and p;roject the head (while seeing a distant object)(Kond.a); go_pka, go_k-p-, go_kt- to stretch forth, stretch the neck in order to observe something, crane the head out (Kui); go_k to look up, await; go_khmu_ look up! (Kuwi)(DEDR 2180).

Branch   **kohk** (Go.), gopka_ = branches (Kui), kob = branch (Ko.)

gorka, gohka spear (Go.) gorka (Go)(DEDR 2126). [All the glyphs taken together represent a group – tree, branches, spy, tiger looking back and up – point to: gohka (spear); xo_xa_ (looking back); kut.ha_ra (tree); kut.ha_ra (spade); kr.a_n.d.i (tiger, axe); heraka (spy); eraka (copper); i.e. a group of copper implements: spade, spear and axe. The tiger, alternatively, may also connote kol, tiger; rebus: kol, smith or forge]

Substantive: *dolan* 'a large house built of brick or stone having a flat terraced roof' (Santali) *d.olo* gain, profit; an important business (G.)

Glyph: *d.hol* 'a drum beaten on one end by a stick and on the other by the hand' (Santali); *d.hol* 'drum' (Nahali); *dhol* (Kurku); *d.hol* (Hi.) *dhol* a drum (G.)

Glyph: *dola* 'a kind of palki'
Glyph: *dol* 'a company, party, detachment'
Glyph: *dol* 'likeness, picture, form' [e.g., two tigers, two bulls.]
Glyph: *d.ol* 'the shaft of an arrow, an arrow'
Glyph: *d.ol* 'an iron bucket for drawing water from a well'; *dolkha* 'a large leaf cup or basin' (Santali) *d.ol* a bucket, a pail (G.)
Glyph: *dhori_* a bull (G.) fr. *dhairiyam* fit for a yoked carriage; fr. *dhur* a yoke (Skt.)
Glyph: *dhoro* a parapet wall (G.)

Glyph: *khad.ra* 'emaciated, bones appearing under the skin, hair thin' (Santali)



me_dhi, me_t.hi, me_t.i, me_n.t.i = a pillar in the middle of a threshing-floor to which oxen are bound; a post to which cattle are tied; a prop for supporting the shafts of a carriage (Ka.lex.) me_t.i, me_n.i = the plough-tail (Ka.); me_di (Te.); me_r..i (Ta.Ma.)(Ka.lex.) med.hi_-bhu_ta = being the central point round which everything turns (Skt.lex.) A zebu bull tied to a post; a bird above. Large painted storage jar discovered in burned rooms at Nausharo, ca. 2600 to 2500 BCE. Cf. Fig. 2.18, J.M. Kenoyer, 1998, Cat. No. 8. cf. kut.hara = the post round which the string of the churning-stick winds (Skt.lex.) khun.t.o = a peg; the anchorage fee (of a ship); the handle of a hand-mill (G.lex.) khu~t.iyo = an uncastrated bull (used in Ka_t.hia_wa_d.); a man versed in witchcraft; a wizard (used in Surat district)(G.lex.) **kut.ha_ru** = an armourer (Skt.lex.) kut.ha_ra = a tree; an axe, a sort of hoe or spade; kut.ha_ru = a monkey (Skt.lex.) khun.t.um = the portion of a tree, or a plant, left in the ground; a stump (G.lex.) **baka** = a kind of heron or crane; **an apparatus for calcining or subliming metals or minerals**; name of Kubera; **baka-yantra** = name of a particular form of retort (Skt.lex.)

me_t.i = a big man, a chief, a head (Ka.Te.Ta.); loftiness, greatness, excellence, superiority (Ka.Te.); me_t.t.imai (Ta.)(Ka.lex.); me_t.i = a head-servant (Ka.Ta.)(Ka.lex.) **me_t.i, me_t.ari** = a chief, head, leader, lord, the greatest man (Te.lex.) met.ha (cf. men.d.a), med.ha, men.t.ha = an elephant-keeper (Skt.lex.) me_dini_sura = a bra_hman.a; me_dini_s'a = a king, a prince; me_dini = the earth, land, ground (Ka.); me_daka = spirituous liquor used for distillation (Ka.); medho_hota (medhas hota) = a sacrificial priest; name of a brahmara_ks.asa; me_de, me_dha_ = understanding, intelligence, wisdom; me_dha = a sacrifice (Ka.lex.) cf. Ahura-mazda; **-mazda** possibly derived from **medha**, sacrifice. Cf. meda [Skt. medas, fat, marrow] fat, marrow (G.lex.) meli (EI 9) same as med.i = a kidnapper of victims for sacrifices; mel-s'a_nti (SITI)(Tamil, Sanskrit) = chief priest of a temple (IEG).

Human-faced markhor and other glyphs

mlecchamukha = copper (Skt.); what has the copper-coloured complexion of the Greek or Mahomedans]. mer-iya = a rock; mer-ayu = to shine, glitter (Te.lex.) **mer** = a kind of large copper or brass pot (G.lex.) cf. **melukka** = copper (Pali); mleccha = copper (Skt.)

The Sanskrit gloss *mlecchamukha* is a compound of: *melh* + *mu~h* (antelope + face); rebus: *melukka* 'copper' + *mu~ha* (iron or mineral) ingot smelted.



c-023 Seal. Double-axe + other arms and armour

med.a, mi_d.ha_, men.d.ha_, men.d.hi_ = a ram (P.lex.) med.hra = a ram; membrum virile,, penis (AV); med.hraka = the penis; a ram; men.d.ha, men.d.hra = a ram (Skt.lex.)

mer.ha = twisted, crumpled, as a horn (Santali.lex.)]

The goat is shown with horns twisted back which also finds a rebus representation: **mer.go** = with horns twisted back; mer.ha, *m.*, mir.hi *f.*= twisted, crumpled, as a horn (Santali.lex.) **mer.ha, mer.ha mir.hi** = adj. twisted backwards (horns of buffalo), having horns twisted backwards (buffaloes)(Santali.lex.Bodding) **mer.ho** = adj. having horns twisted backwards (Mundari.)

Substantive: *meruku* glitter, luster, polish (Ta.); *merugu* shine, luster (Te.); *mer_acu* glitter (Te.); me_r to shine (stars)(Kuwi); *merxa_* sky, heaven (Kur.); mergu, merge sky, heaven (Malt.)(DEDR 5074). The early meaning could be: 'silver'.

Substantive: *me~rhe~t* 'iron'; *me~rhe~t icena* 'the iron is rusty'; *ispat me~rhe~t* 'steel', *dul me~rhe~t* 'cast iron'; *me~rhe~t khan.d.a* 'iron implements' (Santali) *med.* (Ho.)(Santali.lex.Bodding) **mer.ed, me~r.ed** iron; **enga mer.ed** soft iron; **sand.i mer.ed** hard iron; **ispa_t mer.ed** steel; **dul mer.ed** cast iron; **i mer.ed** rusty iron, also the iron of which weights are cast; bicamer.ed iron extracted from stone ore; **balimer.ed** iron extracted from sand ore; **mer.ed-bica** = iron stone ore, in contrast to **bali-bica**, iron sand ore (Mu.lex.)

mer.hao = to entwine itself, wind round, wrap around, roll up (Santali.lex.) [Note the endless knot motif].

Substantive: *me_r.i* plough-handle, plough (Kuwi); *me_r..i* plough, plough-tail, handle of a plough (Ta.); *me_r..i*, *me_n~n~al* plough-tail (Ma.); *me.y* handle of plough (Ko.); *me_t.i*, *me_n.i* plough-tail (Ka.); *me~_d.i*, *me_d.i* hind part of handle of a plough (Te.); *me_r.i* plough handle, plough-tail (Kond.a); *me_ri* plough handle (Kuwi)



Glyph: *mer.go* 'rimless vessels' (Santali) [Note the rimless pot – **U** sign]

mi~d.ho = braid in a woman's hair (S.) **med.hi, mid.hi_, men.d.hi__** = a plait in a woman's hair; a plaited or twisted strand of hair; an ewe (P.lex.)

[Note: The horns of the goat shown on m1179 are comparable to the horns of the lady ligatured to the body of a tiger].

Seated ram figurine from a large copper/bronze pin. The pin attachment from below the figurine has broken off since it was originally discovered but a portion of it stands like a post behind he left shoulder of the ram. Lost-wax casting. Mohenjodaro DK 0781 AC. National Museum, Karachi. Mackay 1938: 300-1, pl. LXXIV, 18-19; 5.38 cm. high, 5.5 cm. long. (After fig. 8.26, Kenoyer, 2000)

Hollow, seated ram figurine with hole in the centre of the back. Punctuated incised designs and with some appliqué. Terracotta. Mohenjodaro DK 9404. National Museum, Karachi. Mackay 1938: 188, 640, pl. LXVI.23.



merom hopon = a kid (Santali) hopa, hopna = small, little, used as a name; hopon = offspring, child, young, to bring forth young (Santali)

mer.h, mer.ha_, me~d.ha_ ram (H.), med.hia_o (Dh.Des.) ram, goat, sheep (G) mid.iyo = having horns bent over forehead (G.)(CDIAL 10120). **me~r.a_, me~d.a_** = ram with curling horns (H.)(CDIAL 10120). me_t.am = goat (Ta.lex.) [cf. the pictorial motif of antelope with head turned backwards]. **merom me~t** = the goat's eye (Santali.lex.) **mes.a** = ram (RV 8.2.40) **mer.om** = a goat; mer.om jel = the hind of the ravine deer, *gazella bennettii*; mer.om **boda** = a he-goat; mer.om en:ge = a she-=goat; mer.om khasi = a castrated goat; paeda mer.om = large flap eared goat; pat.hi mer.om = a she-goat before it has a kid; ram khasi mer.om = a hermaphrodite goat; mer.om jel = goat's flesh; mer.om hopon = a kid (Santali.lex.) **badar** selep jel = the buck; merom goat (Mun.d.ari. Birhor. Ho); me (Nicobar) (Santali.lex.Bodding) me_t.ha ram (Skt.); met.ha_ ram (H.)(CDIAL 10310). **men.d.ho** [Dh. Des. **min.d.hia_o** fr. Skt. men.d.hra, men.d.h, a ram; Skt. medhya a goat, fr. medha a sacrifice] a ram; a sheep (G.lex.) **mer.ho, mer.o** ram for sacrifice (N.); **mersa_g** ram (A. -sa_g <? cha_gya herd of goats (Skt.); sa_ga_ flock of sheep or goats (M.)(CDIAL 5011); cf. saga denoting pha_tries or clans in Gond.); me_n.d.ha ram (Skt.); men.d.a ram (Pali); men.d.aka made of a ram's horn, e.g., a bow (Pali); men.d.ha_, men.d.a_, men.d.hi ram (Or.); med.d.ha, memd.ha, memd.a, mimd.ha, mimd.haga, ram (Pkt.); me~d.ha_ ram (P.M.); me~d.ho ram (G.); mad.aya_ ram (Si.); met.ha_ ram (H.); mi_d.d.ha_, mi~_d.ha_ ram (P.); mer.a_, mer.i ram (B.); **mer.h, mer.ha_,** me~d.ha_ ram (H.); mejhuka_ ram (H.)(CDIAL 10310). me_ha ram (Skt.); meh ram (H.); mei wild goat (WPah.); mya~_-pu_t[u] the young of sheep or goats (K.); me_s.a ram; me_s.i_ ewe (RV.); me_ha, miha (Skt.); me_hati emits semen; me_d.hra ram; penis (Skt.); me_sa sheep (Pkt.); mis'ala (Ash.); mes.el ram (Kt.); mes.e ram, oorial (Pr.); mes., mes.alak ram (Kal.); mes (H.); me_s.asya sheep-faced (Sus'r.)(CDIAL 10334). mu_n, mu_n[u] sheep's wool; munul[u] woollen (K.)(CDIAL 10335). me_s. skin-bag (Bur.); mesa_ dressed and coloured sheepskin (P.); mes'i_ sheep-faced (M.)(CDIAL 10343). me_ke she-goat; me_ tbe bleating of sheep or goats (Ka.); me~_ka, me_ka goat (Te.); me.ke id. (Kol.); me_ke id. (Nk.); me_va, me_ya; she-goat (Pa.); me_ge goat (Ga.); meka_, me_ka id. (Go.); me_xna_ (mixyas) to call, call after loudly, hail (Kur.); mqe to bleat (Malt.); mr..e_ka ? (Te.); me_lh ? (Br.); meka- goat (Skt.)(DEDR 5087). [The m(b)- intial form in Proto-indic may explain the following etyma, with b-, bh- intials:] bhe_d.ra, bhe_n.d.a ram (Skt. < Austro-as. perhaps me_d.ra~ bhe_d.ra collides with Aryan me_d.hra in me_n.d.hra penis, ram (Skt.)(CDIAL 9606). be_d.a sheep (D..); bhed.a id. (K.); bhed., bhid. id. (L.); bhed. id. (P.); bhed.i_, bhed.a_ id. (P.); d.hled.d., bher. (pl. bher.a_) sheep and goats (WPah.); bher.o ram (Ku.N.); bher.i ewe (Ku.N.); bhera_ sheep (A.); bhe~ra_ sheep (A.); ram (Bi.); bher. ram (B.H.); bher.a_ sheep (B.Or.); ram (Bhoj.); bher.i ewe (B.); sheep (Or.); bhe~ri sheep (Or.); bhe~r. sheep (Bi.); bhe~r.i_ ram (Mth.); sheep (Aw.); bhe~r.o ram (Mth.); bher.i_, bher.a_ ram (H.); bher.[i] ram (G.)(CDIAL 9606). bhaid.aka of sheep (Skt.); bhe_d.a sheep (Skt.); bira_t.h, bhi_r.o he-goat (Tor..); biar she-goat (Ash.); byar (Pr.); bur (Bshk.); bhi_r.o he-goat (Phal.)(CDIAL 9604). bhe_d.ravr.ti sheepfold (Skt.); bhe_d.rakut.ika_ sheepfold (Skt.); bhar.o_r.i_ sheepfold (WPah.); bharva_r. shepherd or goatherd (G.)(CDIAL 9606-08). min. sheep (Dameli.Kaf.Gawar-Bati); mina_l ram (Bshk.); min.d. ram (To_rwa_li_); min.d.a_l markhor (To_rwa_li_); mindhal ram (Chili_s); ye_r.o-min. ram (Savi.); min.d., min. ram; min.d.o_l yearling lamb, gimmer (Phalu_r.a.)(CDIAL 10310). [The semantic re-inforcement, 'yearling' in

min.d.o_l 'yearling lamb (Phal.) is relatable to the poss. Proto-indic form for the numeral 'one' muXi or MuXiC with d as the likeliest consonant. cf. Zide, N.H., Studies in the Munda Numerals, p.26. cf. midh 'one` (Savara).][The duplication in ye_r.o-min. ram (Savi.)is also remarkable, exemplifying the flow and the confluence of the language-streams [me_n.d. ~ (1) min.; (2) e_t.]: cf. e_t.a ram (Te.); mer.o ram for sacrifice (N.)(DEDR 5152). The Sv. compound form apparently denotes the special nature of the Proto-indic m(b)in. 'ram', that it is, like e.r. male buffalo, bull for 'sacrifice'. cf. tir e.r buffalo calf at Toda calf sacrifice (Ko.)(DEDR 917).] e_d.a a kind of sheep (Ka_tySr.); e_d.i_, e_d.aka a sheep, or goat (MBh.); aid.a ovine (MBh.); aid.aka a kind of sheep (S'Br.); id.ikka wild goat (Skt.); [< Drav.)]; el.aka ram wild goat (Pali); el.aka_, el.ika_, el.ike_ (Pali); ed.aka ram (As'.); ed.aka_ ewe (As'.); hed.'i sheep ? (NiDoc.); he_t. she-goat (Br.); e_la, e_laya ram (Pkt.); e_liya_, e_d.ya_, e.d.akka (Pkt.); e_r.a_, e_r.o_, yer.o, zer.o ram (Pas'.); e_r.i_, yer.i_ ewe (Pas'.); ye_r.e, yer.o_lik sheep (Shum.); e_r.a, ye_r.a (Gaw.); i_r (Bshk.); oi (Tor.); i_ (Mai.); yer.o, e.r.ia (Sv.); yi_r.o (Phal.); e_r.i (Sh.); eli-pavharu goatherd (S.); el.uva_ goat (Si.); -- X me_s.a-: e_s sheep (Sh.); e_d.aka sheep (Skt.)(CDIAL 2512). e_d.ika ram (Te.); e_t.a ram (Te.); e_d.u goat (Tu.); ye_t.i_, e_t.i she-goat (Go.); e_r.a_ she--goat (Kur.); er.e id. (Malt.); o_d.a goat (Pe.Kui.Kuwi); u_d.e id. (Mand..); a.d.i (Kod..); a_d.u (Ka.); o.d. (To.); a.r. (obl.a.t.-) goat (Ko.); a_t.u goat, sheep (Ta.Ma.); ya_t.u id. (Ta.); a_t.t.-a_l. shepherd (Ta.); a_t.t.uka_ran id. (Ma.)(DEDR 5152). a_t.t.u-k-kit.a_y ram, he-goat (Ta.lex.) me_t.am, me_t.akam, me_ttiram (prob. < me_d.hra); me_r..am, me_r..akam (Ta.) < prob. me_s.aka ram; vempari me_r..aka me_r-r-i (Ci_vaka..521)(Ta.lex.) me_s.a m. ram; me_s.i_ ewe (RV.); me_d.hra ram (Skt.); me_sa sheep (Pkt.); misala (Ah.); mes.el ram (Kt.); mes.e ram, oorial (Pr.); mes., mes.alak ram (Kal.); mes (H.)--X bhe_d.ra; mya~_-pu_t^u young of sheep or goats (K.); mei wild goat (WPah.); meh ram (H.)(CDIAL 10334). Sheepskin: mesa_ dressed and coloured sheepskin (P.); me_s. skin-bag (Burusha_ski); mes'i_ sheep-faced (M.)(CDIAL 10343).

mehra_b = an arch; a vault; a building in the form of a segment of a circle (G.lex.) [cf. the arch surrounding a spoked wheel sign on texts on zebu seals; note the arch over two antelopes shown – face to face -- on the Failaka seal]. Note: Inverted **U** glyph.

Thus, whenever two animals are shown face to face or in opposition, the rebus lexeme could be **me~t, me_dh** [Rebus: **med.hi**, 'merchant's clerk']

Alternative**: mu_ha_ mu_hi_** adj. adv. Face to face, facing one another. [Note. Two short-bulled bulls face to face.]

saman: = to offer an offering, to place in front of; front, to front or face (Santali) **sa_man** = song accompanying processing of soma in sa_maveda (Vedic)

mel.van.a = mixing; a mixture; **mel.van.o** = a mixture; **mel.vavum** [fr. Skt. mil, to join] to mix, to mingle; to combine; to join together (G.lex.)



mel..e, mid.i = a bush, a clump, a thicket (Ka.lex.) [Note the bush shown in front of a hare on copper tablets].

me_d.amu, me_l.amu = a fight (Te.lex.)

me_t.u = a heap, stack; rick, as of hay (Te.lex.) [Note the glyph of a hayrick – like a phonetic determinant -- shown together with a pair of rams on the platform on which a horned person is seated].

Scorpion

Substantive: *kamar* 'blacksmith'; Glyph: *kamar kidin* 'a small species of scorpion'

On the front of a wooden sound-box of a lyre found in a Royal tomb of Ur, is painted a scorpion man holds undefined objects in his raised hands. Behind him is a gazelle carrying two beakers that are similar to the gold, electrum, and silver tumblers from Puabi's tomb

kamar kidin a small species of scorpion; *kidin, kidin kat.kom* a scorpion; *kidin marmar* a species of centipede (Santali)

Glyph: **kamari, kammari** declivity, steep bank, cliff, ravine (Ka.); **kamar** chasm, crack, cleft in the ground caused by drought (Ta.)(DEDR 1229).

***kamra** = the back (Skt.); **krem** = the back (Kho.)(CDIAL 2776). *parikamra = near the back (Skt.); parikama_ = behind the shoulder (Ash.)(CDIAL 7799v). kamak = back (Sang.); com = back of an animal (Shgh.); *kamak = back of an animal (G.M.); kama neck (Yghn.)(CDIAL 14356). **kammaru** = the loins, the waist (Ka.M.); kamara (H.)(Ka.lex.) [Note the sign emphasizing the backbone]. **kamar** the loins, the waist (G.); **kamarpat.i_** a strip of cloth sewn on as a belt to a coat; **kamarpat.o** a belt; a girdle; **kammar** the waist, the loins (G.)

kamra, kambra = an over-cloth, wrapper (Santali); kambal (H.)(Santali.lex.)

khambroi = overseer, leader, steward, foreman (Santali.lex.)

krame_lakamu, krame_lamu = a camel (Te.lex.)

krammar-ilu, krammar-illu, krammar-abad.u = to turn, return, to go back; krammar-u = again; krammar-incu = to turn or send back (Te.lex.) [Note the glyph showing an antelope or a tiger turning back]. **kraman.a** = act of walking or going (G.lex.) **krama** = step, series (AV); krame_n.a by degrees (R.); kama = step, way (Pali); foot, series (Pkt.); -**krem** in oi~n-krem and u~_-krem = upper and lower teeth (Wg.); karo, karu_ = pace, a man's pace (P.); karo karo = at each pace (P.); kema, kama = row, succession; kemen = by degrees (Si.)(CDIAL 3577). kra_mati steps (RV); kramate_ id. (MBh.); kamati = walks (Pali); kamai (Pkt.); **kram-** to thresh (Kt.); kime (Pr.); kromik (Kho.)(CDIAL 3579). **kramkram** = threshing floor (Kt.)(CDIAL 3580). [Note the glyph of a bull trampling someone underneath].

Two animals are shown with characteristic turning of the head backwards. The rebus lexeme is: **krammar-a =** to turn, return (Te.); rebus substantive: **kamar**, 'blacksmith'.

Thus, a tiger with its head turned back is: **kamar + kol** (smith-metal); an antelope with its head turned back is: **kamar + med.h** (smith-copper).

Inscribed objects showing a tiger and an antelope with head turned backwards

The semantics:

Antelope looking back**: kamar** = smith + **med.h, melh** (antelope, **melukka** 'copper', merchant's clerk), i.e. copper-smith.

Tiger: kol 'metal'; **kol** 'tiger'

Hence, **kol + kra_d.i** = tiger; rebus: metal sword or large metal axe.

Tiger looking back**: kamar** = smith + kol (tiger, kol 'metal'), i.e. metal-smith

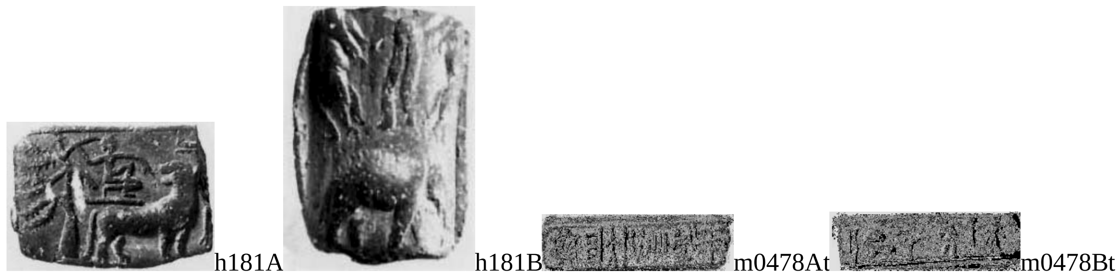
Black hornet **kra_nd.i** (Kui) [cf. kr.a_n.d.i, axe; kr.a_n.d.i, tiger]

Tiger **kr.a_d.i, kra_nd.i** (Kui) **karan.d.amu** (Te.) sword

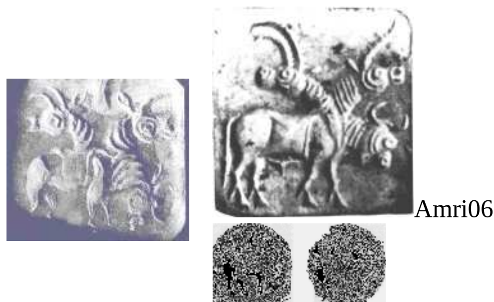
karad.e (Ka.) **kra_d.i** (Kui) Large axe
kara_d.o (G.) carpenter's tool used in hewing down large pieces of wood

[karan.d.aka a box in which lin:ga is worn (Ka.)]

Crown karad.a (IL)

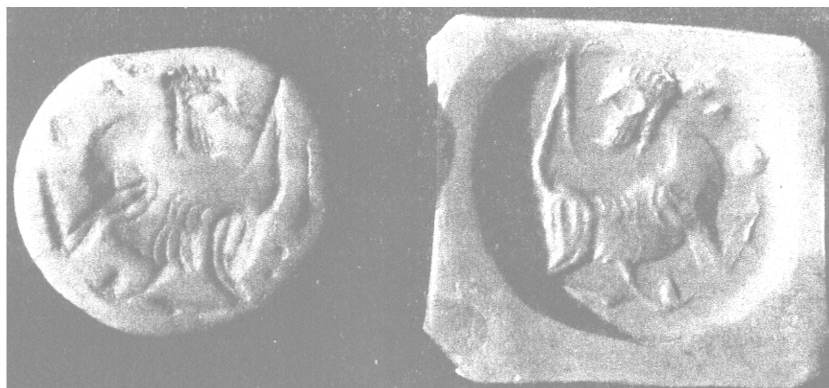

h181A h181B m0478At m0478Bt

Bet Dwaraka (S'ankhodar), a rectangular seal (20 X 18 mm) of conch shell, with a perforated button at the back was found in trench UW6 of Bet Dwarka. A composite animal motif representing the short horned bull, unicorn and goat are engraved in an anticlockwise direction.


Amri06

Chanhudaro Seal obverse and reverse. The oval sign of this Jhukar culture seal is comparable to other inscriptions. Fig. 1 and 1a of Plate L. After Mackay, 1943.


Bactria tablet.


Tepe Yahya. Stamp seal with a tiger with head turned back and tail raised (after Lamberg-Karlovsky 1971).


Kalibangan043 8039 Pict-59: Composite motif: body of an ox and three heads: of a one-horned bull (looking forward), of antelope (looking backward), and of short-horned bull (bison) (looking downward).

 m1170a

1382

Antelope

That me_r.h is the lexeme represented by an antelope (or mountain-goat) is re-inforced by semantic determinants on some inscribed objects which present (1) an antelope in the context of a glyph of a ficus glomerata (med.i) or (2) the ficus glomerata leaf (med.i) in the context of a pillar (me_d.i) to which a bull is tied:



Balakot 05 **medha** = lance-shaft (RV 1.88.3) The animal is a two-horned heifer with pronounced rings on the neck.

On some inscribed objects, the mountain-goat (me_d.h) is shown with a human face, perhaps an orthographic marker that the glyph represents a person, **me_d.h**, chief:

Glyph (the heads of the heifer are face-to-face): **me~t me~t** nepel = v. see face to face; v. nepel; note, this is friendly, quite different from me~t ar me~t (Santali.lex.Bodding) **me_dhaka, me_dhaga** = opposing, quarrel (Pali)(CDIAL 10314). **methati** quarrels with (RV); medhati injures (Dha_tup.); mehn.a_ to reproach (P.)(CDIAL 10315). metti_ friendship (Pali.Pkt.); mitti (Pali); mitti_ (Pkt.); maitra friendly (Mn.)(CDIAL 10340). **mith** = to oppose (Skt.); mithati_ pres. part. f. opposes, quarrels with (RV.)(CDIAL 10128).

me~t = the eye; me~t kot.i = the eye brows; me~t gad.a = the eye cavity; me~t pipni = the eye lashes; me~t dak = tears; me~t sar.im = the eyelids; me~t, me~ndok = inflammation of the eye and appendages; me~ta~ha~ = the face, countenance (Santali.lex.) met, med (Kherew.); mat (Nicobar); med, mid, mat, met (Semang); met, men (Desisi); met (Pangan); mat, met (Sakai); mat (Stieng, Bahnar, Annam); khmat (Khasi); me (Japanese); in a number of Oceanic (Pacific) languages: mata, meta, mita (Santali.lex.Bodding). mi_t.n.a_ = to close the eyes (P.); mit.ik = twinkling, moment (N.); mit.i = blinking (G.); mit.n.e~ = to close the eys (M.)(CDIAL 10119). Mit.akisa = to blink (Ka.)(DED 3969). mel.l.a, mel.l.e = a squinting man, mel.l.agan.n.u, mel.l.egan.n.u = a squinting eye; mel.l.e = rolling, looking obliquely, squinting (Ka.); melle (Te.) (Ka.lex.)

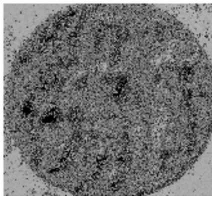


Ox-antelope with a long tail; a trough in front. 6121

med.hi = pillar, support (Pkt.lex.) **me_t.hi, me_t.i, me_d.hi, me_n.t.i, me_dhi** = a pillar, a post; a pillar in the middle of a threshing-floor to which oxen are bound; a post to which cattle are tied; a prop for supporting the shafts of a carriage (Ka.lex.) methi, methi_ = pillar, post, stake (AV 14.1.40); **men.d.** = a low flat top ridge separating fields (H.)(Vedic.lex.) med.h, med.ha_ = post, forked stake (H.); me_dhi – post to tie cattle to, pillar, part of a stu_pa (Pali)(CDIAL 10317). **meht.ha_** post on the threshing floor (Bi.Patna); **meht.a_, me~ht.a_** = the bullock next the post (Bi.Gaya); me_this.t.ha = standing at the post (TS)(CDIAL 10319).

Melukka, copper; melh, goat

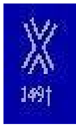
On some glyphs, the antelope is held by its neck (**med.a** or **melkha_**):



urseal8Seal; BM 118704; U. 6020; Gadd PBA 18 (1932), pp. 9-10, pl. II, no.8; two figures carry between them a vase, and one presents a goat-like animal (not an antelope) which he holds by the neck. Human figures wear early Sumerian garments of fleece.

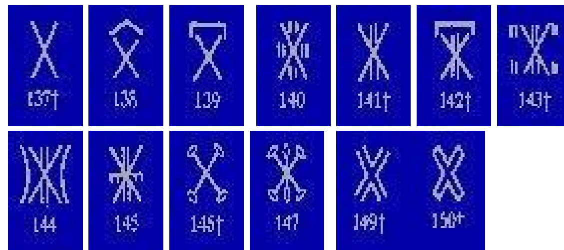
melkha_ throat, neck (Kur.); melque throat (Malt.)(DEDR 5080). This glyph of holding by the throat of the animal is a phonetic determinant of the animal itself: **me_lh** goat (Br.); mr..e_ka (Te.); meque to bleat (Malt.); me_ke she-goat (Ka.); goat (Nk.) me~_ka, me_ka goat (Te.); me.ke (Kol.); me_ge goat (Ga.); meka_, me_ka (Go.); me_xna_ to call, hail (Kur.)(DEDR 5087). **med.a** = neck (Te.lex.) met.e = the throat (Ka.); men-n.a, men-n-i (Ta.); menne (Ma.); mid.ar-u = the neck, the throat (Ta.Ma.); met.regat.t.u = a swelling of the glands of the throat (Ka.lex.) [The dotted circle connoting the eye: **khan:gar** 'full of holes'; rebus: **kan:gar** 'furnace']

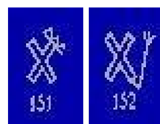
This is rebus for: **melukka** copper (Pali) [cf.Meluhhan interpreter shown on a cylinder seal; the Meluhhan is shown carrying a goat on his hands.]



Sign 149 may connote lustrous or shining (**val**.) cast iron: **tan.t.a** (hence, **tan.t.ava_l.a**)

Alternative for 'cast iron': **dul** 'to cast in a mould'; **dul me~r.he~t, dul mer.ed., dul**; **kot.e mer.ed.** 'forged iron; rebus: rebus: **d.ol** 'arrow'; rebus: dol 'likeness'; **dola doli** = divisions, sects (Santali.lex.)





[Ligatured glyphs: 'mountain range'; 'sprout']

Ligaturing elements of Sign 151 and Sign 152:

damha 'a fireplace'; **d.ha~gar** 'blacksmith' *d.amgi* 'hillock'; **d.agar** 'mountain'

pasra = a smithy, place where a black-smith works, to work as a blacksmith; kamar pasra = a smithy (Santali)

kamar pasra = a smithy; *pasrae lagao akate se ban:?* Has the blacksmith begun to work? *Pasraedae* = the blacksmith is at his work (Santali.lex.) The furnace used by Dhokra/.Maral artisans of Burdwan dist. Bengal (Deripur) was a brick-built structure called **pasra.**

Prastarika = a trader dealing in minerals (Pa_n.ini, As.t.a_dhya_yi 4.4.72; cf. VS Agrawala 1953: 231).

Pra-stara in RV 10.14.4 is interpreted as the grass strewn as a seat for performing the yajn~a; cf. AV 16.2.6; TS 1.7.7.4; VS 2.18.18.64; ABr. 1.26; 2.3; S'Br. 1.3.3.5. Pra-stotr. is the name of an assistant of Udga_tr. priest who sings the **Prasta_va**, or prelude to the Sa_man chant (*Vedic Index*, II, p.44) RV 8.81.5 mentions his function as **pra stos.at;** he is mentioned in TS 3.3.2.1; 6.6.3.1; TBr. 8.8.2.3; ABr 5.34; 7.1; S'Br. 5.4.5.22; 12.1.1.6; Ch.Up. 1.10.8.

pajhar. = to sprout from a root; pagra = a cutting of sugar-cane used for planting (Santali.lex.)

<u>Image: saddle with its gear</u>: praks.ara iron armour for horse or elephant; pra(k)khara id. (Skt.); **pakkhara** bordering or trimming (of a carriage) (Pali); pakkhara, pakkhara_ horse-armour (Pkt.); pakhara dress given by faqir to layman (S.); pa_khar armour for elephant or horse (H.); saddle with its gear (P.L.); net of flowers for bed-cover, horse-armour (G.); pa_khariyo a species of horse (G.); pa_khar caparison of a horse (M.)(CDIAL 8452). cf. pa_gran. bedding, decorations (G.)(CDIAL 8477). 5607.<u>Images: saddle; balustrade; central platform of a chariot</u>: pa_kar wooden balustrade in a car (Cir-upa_n.. 258, Urai.); car; pa_ central platform of a chariot (Ta.lex.) pa_kan- elephant driver, mahout (Na_lat. i,213); charioteer, muleteer, horseman, rider (Tiv. Periyati. 7,5,2); pa_ga_ (M.)(Ta.lex.);

Main road **da~_r.a_, da_n.d.a** (Or.H.)

tan.d.ava_l.a = cast iron (Ka.); tan.t.ava_l.am = cast iron, iron rail, girder (Ta.)(DEDR 3050). Cf. va_l. ploughshare (Ta.); karava_la sword (Skt.)(DEDR 5376). **va_l.** luster, brightness (Ta.)(DEDR 5377). **da~_twa_l** = ploughman (WPah.); da_ta = mowed (Pa_n.)

d.an.d.a = the loins, waist; d.an.d.oli = a string worn round the waist (d.ora) with a large tassel attached to it (Santali.lex.)

d.an: = a pole; **d.an.d.om** = a handle, shaft (Santali.lex.)

Stalk d.a~_t. (B.H.); foot stock of lotus (Mth.); d.an.t.a_ = stick (Bhoj.); t.a_n.d.a_ = dry stalk of ba_jra_ (L.); t.a~_d.a_ (P.) tan.t.iyam = cross-pole (Ta.)(IL 4340) Lute tan.t.u (Ta.)

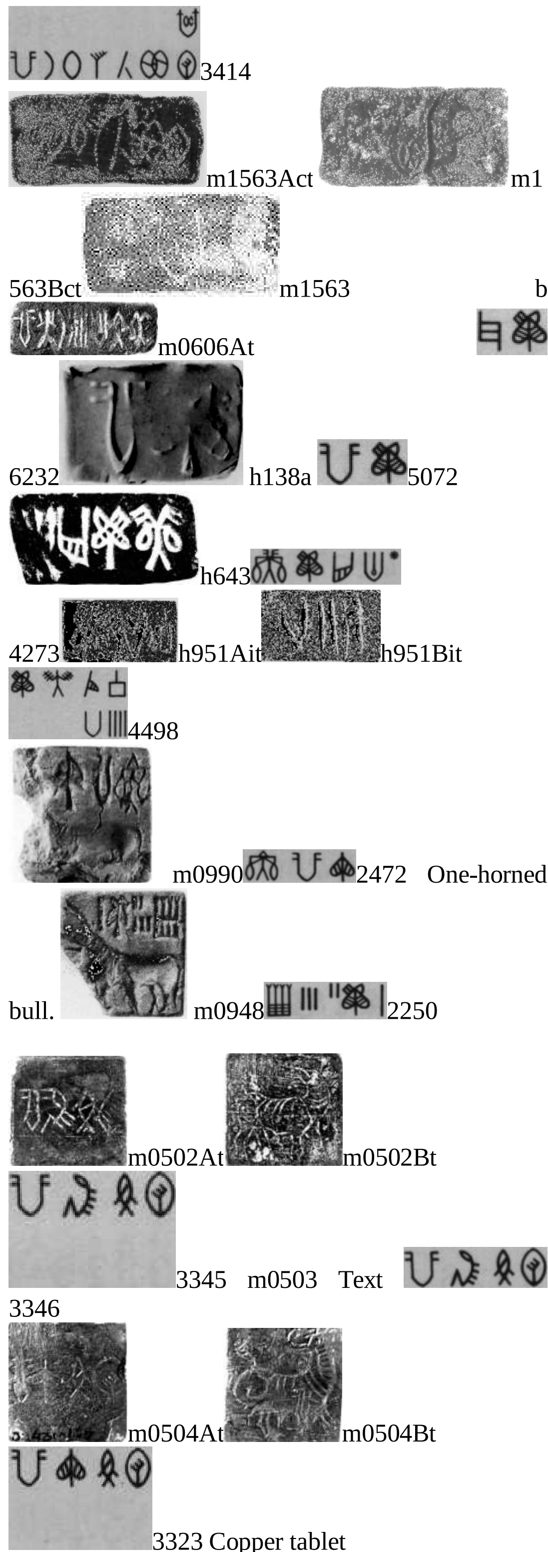
ta_n.t.uni to touch, hit, come into collision, quarrel, fight; ta_n.t.a_vuni to make collide; ha_n.t.u to collide; ta_d.uni to gore, butt; ta_d.u goring; ta_d.elu act of goring or butting; ta_d.uni to gore, butt; ta_d.u goring (Tu.); ta_n.t.i to hit (Kor.); ta_t.u to strike against; ta_d.u to hurt with horns (Ka.)(DEDR 3156). Oppose tan.d.u (IL 4347)

da_~d.o = the backbone (G.)

da~d. part of a tank at each of the embankments where it is prolonged into a narrow channel, often leading to the overflow channel (Santali)

d.an.d.ka, dhan.d.ka = a fish (Santali.lex.) [The next sign after fish, from right, on an epigraph, is a skeleton].

dan.d.ike = a string of pearls (Ka.lex.)

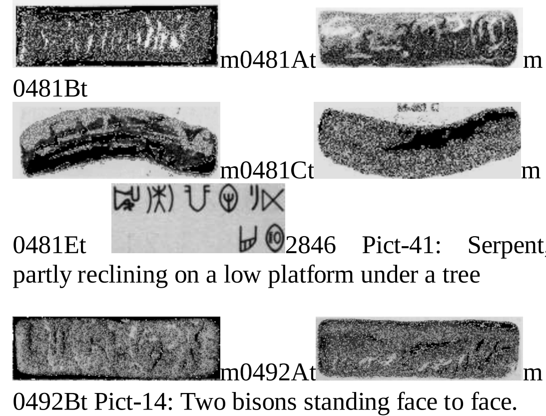


3414

m1563Act m1563Bct m1563 b m0606At 6232 h138a 5072 h643 4273 h951Ait h951Bit 4498 m0990 2472 One-horned bull. m0948 2250

m0502At m0502Bt 3345 m0503 Text 3346 m0504At m0504Bt 3323 Copper tablet

Tall, lanky person/snake



m0481At m0481Bt m0481Ct m0481Et 2846 Pict-41: Serpent, partly reclining on a low platform under a tree

m0492At m0492Bt Pict-14: Two bisons standing face to face.

lar.ga tall, long; *lar.an:ka* tall and stout (Santali) *la_t.i* tall, long (Pa.Go.)(DEDR 5187). *va_l* anything long or elongated (Ta.); va.l long and narrow (of leaves, shape of face, head (Ko.)(DEDR 5365).

lat.a = horns pointing downwards, having the hair tied in a knot at one side of the head instead of at the back (Santali.lex.)

la_thro = young sapling, soft young branch (N.)(CDIAL 10930).

la_t.i_ = [Skt. yas.t.i a stick] a place where timber or fuel is stored and sold; la_t. = the vertical pestle of an oil-mill; the axle of a wheel (G.lex.)

lat. = a lock of hair; tangled hair; entangledness; lat.iya_m = pl. locks of hair; tangled hair; lat.avum = to be entangled (G.lex.) lat. = lock of hair (P.)

lat.a_ = creeper (Or.B.); lund.u = creeper (K.); lond.u = eave-border of the edge of a thatch (usu. Made of birch bark and mud)(K.)(CDIAL 10918). Cf. lata_ (Skt.) lata_ = creeper (Pali); id. (Mn.); lai, nai (Or.); lai_ (S.)(CDIAL 10928).

sukor, sukar the planet Venus as evening star (Santali) **cukkai** star (Ta.); **cukka** (Te.); sukka (Kol.); **suk'erika** stars (Kuwi)(DEDR 2646).

sokol fire (Santali)



m0305 (A person in 'yoga' posture on a seal-fragment; two fish signs are seen; the buffalo horns include a head-

dress, bearing a fig branch and there are two stars in the two loops of the horns).

d.han:gar 'blacksmith'

d.a_n:g (IA 26), also spelt da_n:k, corrupt form of t.an:ka (IEG) da_ni_ (IE 8-5; EI 26) officer collecting tax or corn; da_n.ibhoga (HRS), periodical supplies of fruits, firewood and the like by the villagers, according to some; tax for maintaining the collectors of the tax called da_na; same as da_nibhoga-bha_ga (IEG)

d.han: = to be obstructed, impeded, to meet with an obstacle, to be entangled (Santali.lex.) dan:ga = to fight, or strike each other; a free fight; to assault (Santali.lex.) [Thus, the pair of oxen shown in a fighting or butting posture, can be deemed to be a phonetic determinant of d.an:gra = an ox, bullock -- rebus, blacksmith or digger of wells and tanks.]

d.an:ku = a pretty large double drum (Ka.); dan:ke (Te.); d.an:ka_, d.a_n:ka_ = a large kettle drum (M.); d.an:gu = tom-tom beaten by the crier (Te.); tan.t.ora (Ta.); d.avan.d.i_ (Ma.); d.an:gara, d.an:gura, dan.d.ora = public notice by a crier who beats a tom-tom, an oral proclamation; the tom-tom beaten by the crier (Ka.); d.a_n:go_ra_, d.ha_n.d.o_ra_, dha_n.d.o_ra_ (M.)(Ka.lex.)

A synonym of d.an:gar, 'bull' is: it.an:kar, 'alligator'. vr.jina crocodile, nakra, negar..u (Ka.lex.) vit.an:kar crocodile (Varata. Pa_kavata. Na_racin.. 133); it.an:kar crocodile (Kur-icip. 257)(Ta.lex.) Alligator is a pictograph on many inscribed objects.

Ear of maize or corn



sisa ear of paddy; bae daklette sis ban: od.oklena = no paddy-ears came out, because it did not rain (Santali.lex.Bodding) sis = an ear of dhan (Santali.lex.) si_rs.a = head (AV); sisa, sisaka head (Pali); s.i_s. = ear of maize (Bshk.); s.i_s.a ear of corn (Phal.Sh.); s.i_s.u = fir-cone, ear of wheat (Sh.); sisa_ ear of rice emerging from stalk (Or.); sis-kat.ni_ cutting ears without stalks (Bi.); si_s, si_sa_ ear of wheat (Mth.); s'i_s, s'i_~s just-formed fruit of cucurbitaceous plants appearing as a knob behind the flower (M.)(CDIAL 12497). s'i_rs.aka = an ornament of flowers on the head (Ka.lex.)

sisa = lead (Santali.lex.) si_sa = lead; adj. Leaden (VS); si_saka (Ya_jn~.); si_sa lead (Pali.Pkt.); si_saya (Pkt.); si_ho (S.); si_so_ (WPah.); si_so (Ku.); siso (N.); xih (A.); sisa_ (B.); sisa_, si~sa_ (Or.); si_sa_ (H.P.G.); s'ise~ (M.)(CDIAL 13445). sisa = lead; banduk guli do sisa reak = gun bullets are of lead (Santali); si_sa_ (H.)(Santali.lex.Bodding) sisa [Persian she_sha_] lead; solder; a lead pencil (Mundari.lex.) si_sa, si_su, si_saka, si_sapatra, na_ga = lead (Ka.lex.)

[Note: the representation of s'es.asa_yi_ as Vis.n.u reclining on the serpent's body; synonym of s'e_s.a = na_ga which also means lead; hence, the rebus representation of si_sa lead can also be a snake]. S'e_s.a = the thousand-headed serpent s'e_s.a (Ka.lex.)



lo = nine; rebus: lo = iron (Santali)

So, sisa lo (lead, iron); pasra 'sprout'; pajhar. 'furnace'.

Nine cobs of corn (?flowering shrubs). A cob of corn (sprout from a tuber or a flowering shrub?) is stylized like the five fingers of the palm of person (lady?) in the centre. There is a tree to the left. Ram, markhor, antelopes (looking backward) are shown. A standing person has horns. Shahda_d. Impression of a cylinder seal. [After Pl. 209 in: BB Lal and SP Gupta, eds., *Frontiers of the Indus Civilization*].



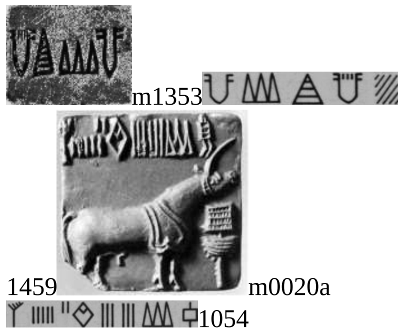
Steatie vessel. Ur. Two horned bulls and ears of corn (L. Woolley, *Mesopotamia and the Middle East*, London 1961, pl. on p. 50].



Sumer, cylinder seal depicting a row of one-horned bulls and ears of corn (H. Frankfort, *Cylinder Seals*, London, 1939, pl. Vb). "...the 'unicorn' appears to be a watered-down, much recopied version of the Sumerian and Proto-Elamite one-horned bovine tradiiton." (During Caspers, Harappan Temples--fact of fallacy? *South Asian Archaeology* 1987, p. 248). During Caspers also sees parallel between the ear of corn shown on cylinder seals and the 'standard' shown on the Harappan inscriptions in front of the 'unicorn'.

Susa, Iran; steatite cylinder seal . A bison with head lowered, feeding from a basin. A second bison figure is seen. Inscription on top. Louvre Sb 2425, Musee du Louvre and Pierre and Maurice Chuzeville.

Hill, ligatured hill



m1353

1459 m0020a

1054



m0048a

1186

m0665 1139

4823 [Pottery]



Kalibangan053 8036



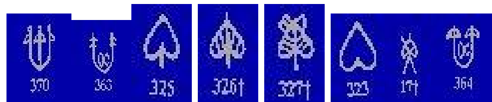
Sibri-damb02E

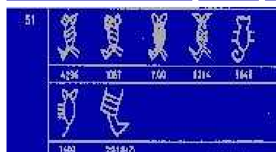
d.agar = little hill (H.); d.a~_g = mountain-ridge (H.); hill-tract (M.)(CDIAL 5423). **dan:ga, d.an:gal** = highlands unsuitable for rice cultivation; dan:gaur.a = a rubbish heap, a heap of rubbish; dan:gi = a part of the slope of a hill (Santali.lex.) d.u~g = hill, pile (M.); d.u~ga_ = eminence (M.); d.um:gara = mountain (Pkt.); d.u~gar id. (Ku.); d.un:guri = hillock (Or.); d.u~_gar id. (H.); d.u~gar id. (G.); d.u~_garu = hill (S.); d.o~gar = hill (H.M.); t.an:ka = peak, crag (MBh.); t.akuru = mountain (S.); t.a_kuro = hill top (N.); t.a_n:gi_ = hill, stony country (Or.); **t.a_n:gara** = rocky hilly land (Or.); t.in: = mountain, peak (A.); t.ek = hillock (M.); t.u~k = peak (G.); t.e~_g = hillock, mound (K.); t.u~g = mound, lump (M.); d.a~_g = stony land (Ku.); d.a_n:ga_ = hill, dry upland (B.); d.a~_g = mountain-ridge (H.); hill tract (M.); da~-g = hill, precipice (H.); da~_gi_ = belonging to hill country (H.)(CDIAL 5423). **d.ok** = high ground, hillock, heap (Kho.); d.hok = large piece of broken stone (H.); d.hu~go = stone (Ku.); d.hun:go (N.)(CDIAL 5603). d.hu~yer = carrier of stone (Ku.)(CDIAL 5604). t.okh = hammering (K.); t.oka = nail, peg (Ash.)(CDIAL 5476).

Substantive: **d.ha~gar** 'blacksmith' [The ligature of a 'ficus religiosa' leaf reinforces the nature of the metal work: *loa* 'ficus religiosa'; *loh* 'iron'; Thus Kalibangan Text 8036 is to be read as: iron-smith.][11]

Two special ligatured glyphs: furnace and smithy

There are two glyphs with characteristic ligatures on top: one is a leaf and the other is what looks like the back of a field-rat.



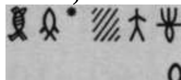


[Is it a bird or an India River Otter? Could it be a scorpion's tail/sting ligatured to a field-rat, a model for Signs 51 and 52?   See variant in Text 9845 West Asia find]

(Sign 51 itself is ligatured with special markers on top comparable to the markers ligatured on Sign 327) This connotes, **bica** 'scorpion'; bica, 'ore'? Or, **kod.el**, 'rat'; rebus, substantive: **kol.el**, 'smithy'.

If the ligatured leaf connotes a **kamat.ha** (rebus: **kampat.amu** 'furnace' (Te.); the ligatured **kod.el** 'rat' may be rebus for kol.el 'smithy'.

Copper, iron ingot

urseal15 A scorpion (?or, some seated animal seen from the back) is seen as the first sign from left. 9845



Ur Seal impression; UPenn; steatite; bull below a scorpion; dia. 2.4cm.; Gadd, PBA 18 (1932), p. 13, Pl. III, no. 15; Legrain, MJ (1929), p. 306, pl. XLI, no. 119; found at Ur in the cemetery area, in a ruined grave .9 metres from the surface, together with a pair of gold ear-rings of the double-crescent type and long beads of steatite and carnelian, two of gilt copper, and others of lapis-lazuli, carnelian, and banded sard. The first sign to the left has the form of a flower or perhaps an animal's skin with curly tail; there is a round spot upon the bull's back. [The first sign looks like an animal with a long tail – as seen from the back and may have been the model for the orthography of Sign 51 as noted in Mahadevan corpus]. "...the most remarkable sign being the first one to the left (in the impression) having the form of a flower or perhaps an animal's skin with curly tail...the round spot upon the bull's back is also curious." (C.J. Gadd, Seals of Ancient Indian Style Found at Ur', in: G.L. Possehl, ed., 1979, *Ancient Cities of the Indus*, Delhi, Vikas Publishing House, p. 119).

The emphasis of the last glyph (as evolved from the back-view of the field-rat of the Ur seal) is on the sting of the scorpion-like ending: *kot.ukka* scorpion's sting (Ta.); *kod.k* to peck (Nk.); *kod.gi* hoe (Go.)(DEDR 2064).

The round spot upon the bull's back can be compared with another hieroglyph, the 'eye' or 'oval representation of a bun ingot':



Chanhudaro Seal obverse and reverse. The oval sign of this Jhukar culture seal is comparable to other inscriptions. Fig. 1 and 1a of Plate L. After Mackay, 1943. A similar glyph of an oval appears together with a scorpion.

lat.t.ho = a lump of gold (G.lex.) la~_do = clammy lump (G.); laddi_ = elephant's dung (Pkt.)(CDIAL 10933). **lad.um** = a goldsmith's tool (G.lex.)

kandhi = lump (Santali.lex.) [Glyph: Antelope + (bun) ingot: *melh* 'antelope'; rebus: *melukka* 'copper'; kandhi 'ingot']

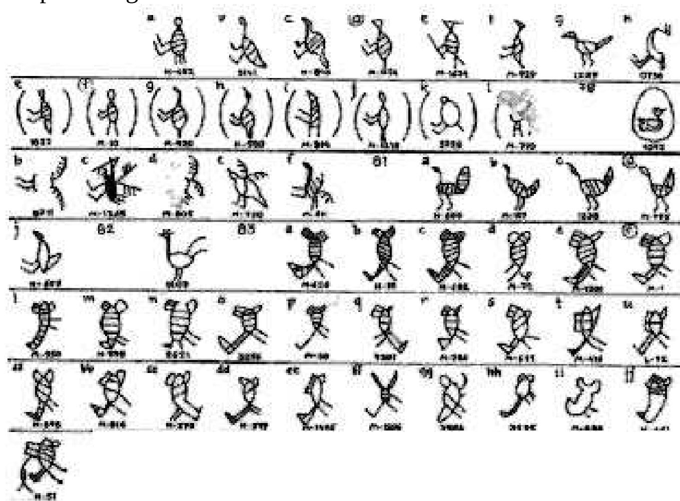
Field rat, bandicoot: *kot.t.il* cowstall


Kalibangan068A


Kalibangan068B 8117

[The reading of the first sign from right on the top line as a 'bird' glyph may not be correct; it may connote the early orthography of a field-rat, shown as a seated animal with a pronounced tail.]

Sign 51 corresponds to Pictorial motif 83 of Parpola's sign list:



[After Parpola, 1994, p. 71: Sign list of the Indus Script, with principal graphic variants.]

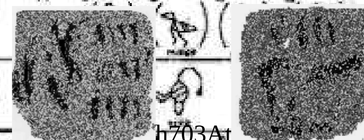
That Sign 51 is ligatured to a scorpion [and to be distinguished from a bird] is surmised from the orthography, emphasizing the tail with the pointed 'sting' in most of the variants and on Sign 51 and also from the pictorial motifs which are field-symbols on inscribed objects dominated by the 'scorpion' motif. See, for example, the Nindowari-damb seal: Nindowari-damb02 bakhor., 'toothed comb'; rebus: **bakhor.,** 'knife, splicer for tassar cocoons'; kamat.ha, 'crab'; rebus: **kamat.ha_yo**, 'carpenter' or kammat.a, 'furnace, coiner, mint'; kod.el, 'bandicoot'; rebus: **kole.l**, 'smithy'. Alternative decoding of Sign 176: Comb **kangha** (IL 1333) ka~ghera_ comb-maker (H.)

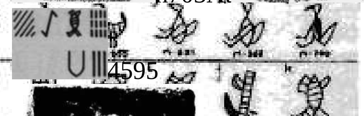
Comb **kangha** (IL 1333) ka~ghera_ comb-maker (H.)

kan:g = brazier, fireplace (K.)(IL 1332) Portable brazier **ka~_guru, ka~_gar** (Ka.) whence, large brazier = **kan:gar** (K.)



h305A h305B Text 5460


h703At h703Bt


4595

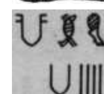

m1549Act

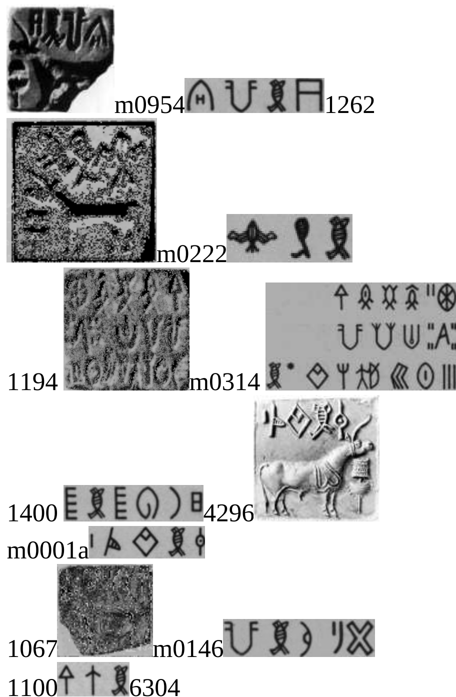

m1549Bct


h305A


h305BText 5460


h788At 
h788Bt


4683



m0954 1262

m0222

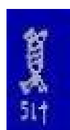
1194 m0314

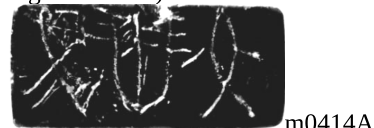
1400 4296

m0001a

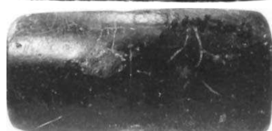
1067 m0146

1100 6304

Sign 51 ) recurs in a seal:



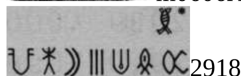
m0414A



m0414B Seal with incision on obverse 2004 The middle sign could be interpreted as a ligature of a 'stele' found in the center of a fire-pit on many sites of the civilization and the most frequently occurring glyph denoting the rim of a narrow-necked jar.



m0606At m0606Bt



2918

Two identical ligatures on two signs

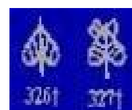
It should be noted that Sign 51 has ligatures on top similar to the ligatures affixed on the 'leaf' sign; only these two signs get such identical ligatures:



Sign 51 and Sign 327

Special ligatures, are like the claws of the 'scorpion' or the 'ears' of a field-mouse (See variant on Text No. 9845: Gadd seal No. 13).
Bandicoot = ko_d.el (Pa.) [**kod.el** = rat (Go.)]
kole.l = smithy, temple in Kota village (Ko.)

If the superscripted ligatures render the Sign 51 to be read as: **kole.l** 'smithy', Sign 32 (ligatured leaf) can also be related to a smithy: **kammat.a** 'furnace' (Te.); **kamat.ha** 'ficus religiosa'; **lo** 'ficus'; rebus, **lo** 'metal'.

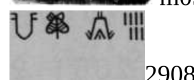


Sign 326 and Sign 327 (Sign 326 ligatured with special markers on top). This connotes: lo, 'fig leaf'; loh, 'metal'.

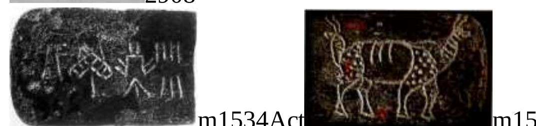
Sign 327 (ligatured leaf) appears on a copper plate epigraph (m1534; text 1703):



m0578At m0578Bt



2908



m1534Act m1534Bct 1703 Composition:
Two horned heads one at either end of the body. Note the dottings on the thighs which is a unique artistic feature of depicting a rhinoceros (the legs are like those of a rhinoceros?). The body apparently is a combination of two rhinoceroses with heads of two bulls (or, nilgai, blue bull?) attached on either end of the composite body.

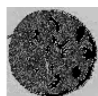
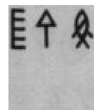
Nilgai, blue bull: **god.** = bison (Go.); gud.va = nilgai (Pa.); **kod.al** (ma_v_= a kind of deer; khod.d.a ma_v = blue bull (Go.); gura = bison (Kond.a) (DEDR 1664) go_dalu = pl. horned cattle of any kind; as in: **god.d.ugo_dalu** (Te.lex.); **god.lu** = horned cattle; **go_da** = an ox (Te.lex.) The rings on the neck of the ligatured head: **kot.,iyum** 'a wooden circle put round the neck of an animal. Clearly, this glyptic element can be seen as a phonetic determinant.

Substantive: *got.i_* a lump of silver (G.)

The ligaturing elements of two faces of a blue bull can be read as **god.** 'bison'; rebus substantive **kod.** 'artisan's workshop'.

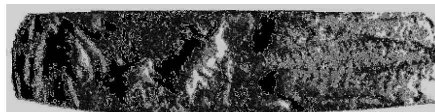
Thus, Sign 51 and Sign 327 can be interpreted respectively as: (1) **kole.l** 'smithy' for **bica** 'iron ore'; and (2) **kole.l** 'smithy' for **lo** 'metal'.

Leaf

h243B Tablet in bas-relief Pict-78: Rosette of seven pipal (?) leaves. 4664 *lo* 'ficus glomerata'; *lo* 'iron'; *er..u* 'clubs'; Rebus: seven iron clubs. *bakhor*. 'comb'; *bakher* 'homestead'; *d.ol* 'arrow'; *dul* 'cast iron' [cf. Fish signs analysed elsewhere.] *ten:gra hako* ' a species of fish'; *t.an:gi* 'stone chisel' (cast iron chisel?) *eae* 'seven' (Santali); *e_d.u* (Te.); *e_r..u* (Ta.) The circumgraph of four short linear strokes may be a synonym of the 'arrow' glyph:

h888Abit 4466

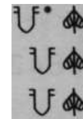
m0602At m0602Bt



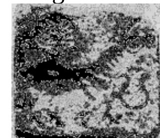
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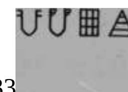
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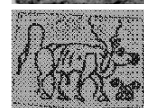
Pict-101: Person throwing a spear at a buffalo and placing one foot on its head; three persons standing near a tree at the centre.

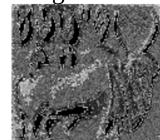
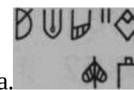
2819 Pict-60: Composite animal with the body of an ox and three heads [one each of one-horned bull (looking forward), antelope (looking backward) and bison (looking downwards)] at right; a goat standing on its hindlegs and browsing from a tree at the center.

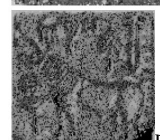
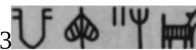
Ox-antelope with a long tail; a trough in front. 6121

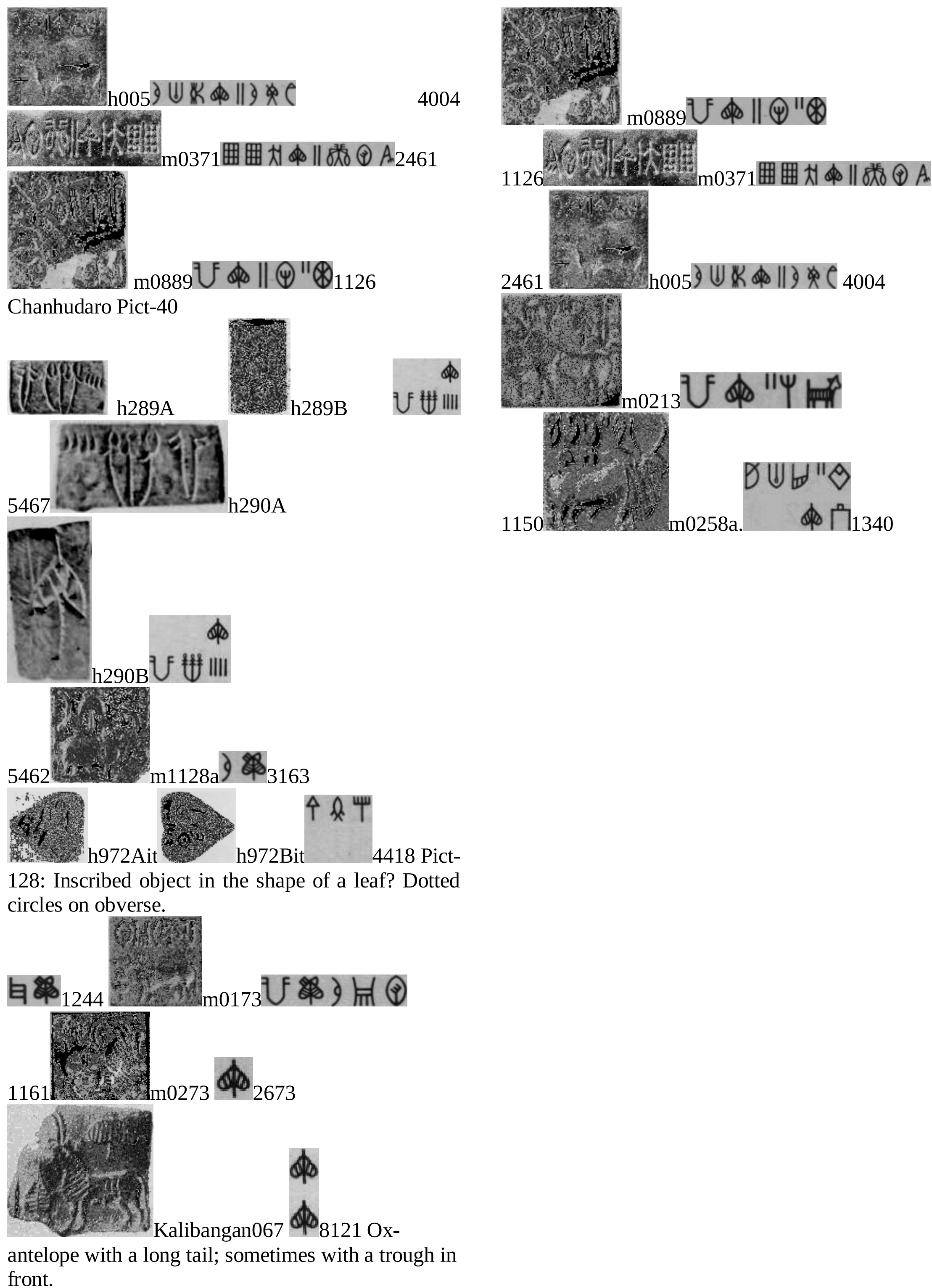
Kalibangan026 8071

m0233 1804

Pict-39 Ox-antelope with a long tail; a trough in front.

m0258a. 1340

m02131150

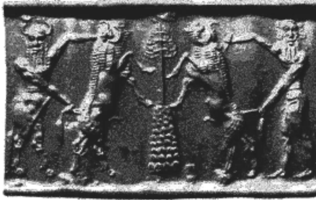


4418 Pict-128: Inscribed object in the shape of a leaf? Dotted circles on obverse.

1244 m0173

1161 m0273 2673

Kalibangan067 8121 Ox-antelope with a long tail; sometimes with a trough in front.



The bulls flank a mountain topped by a leaf. Scene representing Gilgamesh and Ea-bani in conflict with bulls in a wooded and mountainous country; Cylinder seal impression, Mesopotamia British Museum No. 89308.

ku_t.amu = the summit of a mountain (Te.lex.)

ku_t.akamu = mixture (Te.lex.)

ku_d.ali, ku_t.ami, ku_d.ika = junction (Te.lex.)

ku_t.a_mu = a hall in a house (Te.lex.)

ku_t.ud.u = a stone-cutter (Te.lex.)

ku_t.uva = an army, a host; a collection; ku_t.uvamu_ka = an army consisting of untrained rabble, or irregular troops (Te.lex.)

ku_t.avarusalu = a necklace of four to eight thin gold chains hanging together (Te.lex.)

a_raku_t.a 'brass'.

me_d.i glomerous fig tree, *ficus racemosa*; opposite-leaved fig tree, *ficus oppositifolia* [Te. = udumbara] (Ka.) *ficus glomerata* (Te.); *me_r.i* id. (Kol.)[*Ficus glomerata* Roxb. = *Ficus racemosa* Wall.](DEDR 5090).

met.t.u mound; me_t.u hillock (Ta.); **me_t.u** rising ground, hillock (Ma.); **me_d.u** rising ground, hillock (Ka.)(DEDR 5058). **met.t.a_** = hillock (Or.)(CDIAL 10308). **mer** = mountain (Kho.); me_ruve = pyramid (Ka.)(CDIAL 10330). [The leaf sign is associated with a hill and also an 'antelope' pictorial motif on inscribed objects].

med. Iron, iron implements (Ho)(Santali.lex.Bodding) **men.d.a_** = lump, clot (Or.)(CDIAL 10308). mer = a kind of large copper or brass pot (G.lex.) **mer.ed., me~r.ed., me~r.e~d.** iron; en:ga mer.ed. soft iron; sand.i mer.ed. hard iron; ispa_t mer.ed. steel; dul mer.ed. cast iron; bicamer.ed. iron extracted from stone ore (Mundari.lex.) **balimer.ed.** iron extracted from sand ore; mer.ed. niga an iron cart axle; mer.ed-o of ore, to be reduced to iron; of iron, to be produced from ore; mer.ed.-bica = diribica iron stone ore, in contrast with balibica iron sand ore (Mundari.lex.) me~r.he~t = iron; me~r.he~t icena = the iron is rusty; ispat me~r.he~t = steel; dul me~r.he~t = cast iron; me~r.he~t khan.d.a = iron implements (Santali.lex.)

mehro = a pa_lki_ bearer (G.lex.)

me_t.i, *me_n.i* = the plough-tail (Ka.); me_di (Te.); me_r..i (Ta.Ma.)(Ka.lex.)

ra_yi = a stone, rock (Te.lex.) **san:gatara_su** = stone cutter (Te.)

<u>Image: turner's point for hollowing with</u>: **rachi_** turner's point for hollowing with (S.); racch tools, implements (L.); racch that part of loom to which web is attached and along which shuttle plays (P.); rachu treddles of a loom, fish net, vessel or utensil for holding or cooking food etc. (S.); ra_ch instrument, implement, apparatus, weaver's toothed instrument (H.); **ra_c** tools, implements, furniture, materials (G.); rathya pertaining to a chariot (RV.); collection of chariots (Pa_n..); chariot with its team or equipment (RV.); rathaka_ra chariot-builder, carpenter (Skt.); rahaa_ra id. (Pkt.); radhe'aro shoemaker (Dhp.)(CDIAL 10607). re~ples tongs (Lith.); rapas (demon of) injury (RV.)(CDIAL 10607). art- (arty-) to pursue (men, game, etc.)(Ko.); carp- (cart-) to drive (Pa.); sarp- (sart-) to drive, chase (Ga.); sarc- (sart-) to chase (Ga.)(DEDR 2362). cf. sa_rathi charioteer (RV.); saratha with a chariot (S'Br.); cf. ratha chariot, cart (RV.)(CDIAL 10602). <u>Barber's case of tools</u>: richa_han., raccha_n.i_, richa_hn.i_ barber's case of tools (L.); racha_n.i_ (P.)(CDIAL 10608).

rajas = dust; rajasa = dusty, unclean (Vedic.lex.) **rajas** = dust, powder, any small particle of matter (Ka.lex.) **rajassu** = any small particle of dust, as a mote in a sunbeam (Te.lex.) **ni_raja** = free from dust (MBh.); n.i_raya = free from dust, pure (Pkt.); niro = pure, unalloyed (S.)

rajas = menstrual excetion; rajasvale = a menstruating woman (Ka.lex.)

ra_ji = a striped snake; ra_jimat, ra_jila = a species of snake (Sus'r.); ra_ji_va = a kind of striped deer (Skt.lex.)

Native metal, iron ore and other minerals

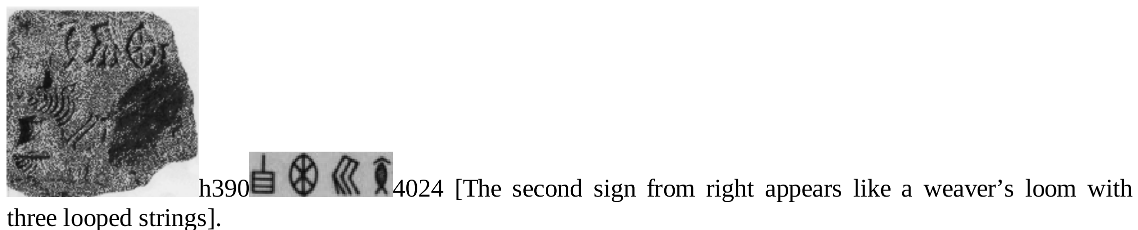
Glyph: *balle* a thicket, bush (Tu.); *vallai* extensive thicket (Ta.); *balle* thick bush, thick jungle (Ka.); *vallara*, *vallura* arbour, bower, thicket (Skt.); *vallara* id. (Pkt.)(DEDR 5289). v*al.l.i* climber, creeper (Ta.Ma.); *bal.l.i* id. (Ka.Kod.Tu.); creeper, esp. the betel wine (Tu.); *valli*, *vallika* creeper, climbing plant (Te.); *valli_* creeper (Skt.)(DEDR 5316, CDIAL 11429).

Glyph: *val.l.uvan*- a Pariah caste, the members of which are royal drummers, and priests for Paraiyas (Ta.); a priest of the Parayas, a low-caste sage, a caste of slaves (Ma.)(DEDR 5318).



m1367a 2661 Two bisons standing face-to-face

Another glyph which may be rebus for *ten:goc* 'chisel' is *ten:* 'to weave'



h390 4024 [The second sign from right appears like a weaver's loom with three looped strings].

BHIMBETKA	ROCK SHELTER
INDUS VALLEY (HARAPPAN CULTURE)	INDUS SCRIPT SEALS + SEALINGS
BHIRMOUND, BAHAL, TAXILA SWAT, PATRAHA, MAMDAR, BHAGALPUR, PESHAWAR, AHRAURA	PUNCH-MARKED COINS
BAHAL, GULBARGA, MACHUATOLI, HATHUMA, BENARAS, RAIRH, WADIA RAMNAGAR, THATHARI	,,
BHAGALPUR, PESHAWAR, BHABHUA, PURNIA, SWAT BHIMALIPATAN, PATRAHA, MACHUATOLI, BAHAL, GOKULVAN	,,
MAHBALAM, MAYURBHANJ, TEREGNA, KOSAM, PESHAWAR, AHRAURA	,,
PATRAHA, BAHAL, BHIMLIPATAN, RAIRH, KARIMNAGAR, AHRAURA, PESHAWAR, HASANBADAL, BHIRMOUND	,,
HASANBADAL, PATRAHA, RAIRH, MAMBALAM, AHRAURA, MATHURA, SWAT, BHIRMOUND	,,
MACHUATOLI, LALGANJ, BHIRMOUND, MATHURA, RAIRH, NALNDA, AHRAURA, PATRAHA	,,
PESHAWAR, AHRAURA, PATRAHA, TEREGNA, BHAGALPUR, GULBARGA BHIRMOUND, MAMBALAM	,,

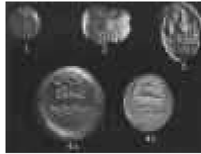
[Pl.38, Mountain range symbol on punch-marked coins in comparison with the symbol on SSVC inscribed objects]

As seen from the last three rows of Pl. 38, the ligaturing of glyphs to the mountain ranges indicates that the ligature elements are minerals found in mountains. e.g. Substantive: *aduru* 'native metal'; glyphs: *adar* 'brahman.i bull'; *ad.aru* 'twigs or branches of tree'. *ke~r.e~ ke~r.e~* call of quail at pairing season; *ce~r.e* a bird; *ke~r.e~ ko~r.e~* an aboriginal tribe who work in brass and bell-metal (Santali)

AURIHAR, KOSALA, PAILA. SHAMIWALA, SINGAVARAN	PUNCH-MARKED
AURIHAR, RAWAL PINDI BHIRMOUN, JAUNPUR, RAIRH TEREGNA, KOSALA.	"
MAGADHA, AURIHAR, SINGAVARAN, JAUNPUR, BESNAGAR, DAILA, JAUNPUR	"
JAUNPUR, RAIRH, SWAT. MACHUATOLI, THATHARI, AURIHAR, BHIRMOUND NANGRUL	"
MIRZAPUR, PATRAHA, BHIRMOUND, RAIRH, VEMBAVUR, RAMAN MACHUATOLI, GULBARGA	"
LALGANJ, AURIHAR, JAHANGIRA, BHILSA, THATHARI, RAWALPINDI, LOTAPUR	"
LOTAPUR, AURIHAR, SINGAVARAN, PATRAHA, MAMBALAM, BHIRMOUND MACHUATOLI	"
BESNAGAR, MAGADHA, PATARAHA, GOKULVAN, BHIMLIPATAN, BAHAL, TEREGNA, RAIRH.	"
BESNAGAR, MAGADHA, PATRAHA, GOKULVAN BHIMLIPATAN, BAHAL, MACHUATOLI, JAUNPUR.	"
AURIHAR, GULBARGA, MAMBALAM, PATRAHA, VEMBAVUR, GORAKHPUR MACHUA TOLI	"
AHRAURA, PESHAWAR, MAGADHA, BHIRMOUND, SINGAVARAN	"
ERAN	LOCAL COINS
CENTRAL INDIA UNITED PROVINCES	UNINSCRIBED CAST COINS
KAUSAMBI, MATHURA, UJJAYINI, TAXILA, KADA, SIBIS. PAÑCHĀLA	LOCAL - TRIBAL COINS

Taurine symbol [Pl. 35, on punch-marked, local, uninscribed cat coins and local coins]. The symbol is so intense in almost all cultural periods and in a large number of sites that the taurine symbol can be compared with the most frequently occurring sign of the SSVC inscribed objects: the 'rimmed jar with a narrow-neck' (*kan.d.kanka* – copper furnace).

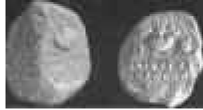
Seals and sealings of the historical period



1. Sealing of Dan.d.ana_yaka Satya (vrata?), Rajghat, Bharat Kala Bhavan, no. 6372; 2. Sealing of Dan.d.ana_yaka Anuttara, Rajghat, Bharat Kala Bhavan, no. 6376; 3. Sealing of Dan.d.ana_yaka S'an:karadatta, Bhita, Indian Museum, Calcutta, no. A. 11227-NS 1547; 4a. Seal of Dan.d.ana_yaka Ksa (Ska)nda, Rajghat, Dept. of AIH, C and Arch., BHU, no.1; 4b. Plasticine impression of (a).

Notes: "Several clay seals and sealings from Rajghat belong to a class of officers known as dan.d.ana_yaka-s...The letter (on 4a)*ksha* is, in all probability a mistake for *ska*. The peacock, va_hana of the god Skanda, was appropriately chosen by the namesake. Another sealing from the same site with a chakra flanked by a spear on the left aqnd a crescent on the right has the legend Dan.d.ana_yaka Anuttarasya in early Gupta characters (pl. IX,2). A third of the same provenance shows a bull recumbent on the left and the legend Dan.d.ana_yaka Satya(vratasya) (pl. IX,1)...All these are obviously derived from dan.d.a which means 'army', a 'rod' as well as 'punishment'. There is no unanimity among scholars regarding the exact connotation of these words. Stein, Marshall, Vogel and Bhandarkar interpret the expression to mean a police officer; Beni Prasad, Bloch, Mookerji, Banerji, Sankrityayan and Dikshitar interpret it to stand for a judge. Raychaudhuri, Fleet, Altekar and Dr. Sircar take it to denote an 'army officer' while Marshall, elsewhere, was undecided about its exact meaning and translated it as 'chief judge' or 'chief officer of police'. If bala_dhikr.ita (also maha_bala_dhikr.ita) and dan.d.apa_s'ika were officers of the army and police respectively, it would be reasonable to suppose that the dan.d.ana_yaka, in the main, was a judicial officer. Would the symbols on these seals and sealings help us in understanding the meaning of this term and the duties and office of that officer? It is significant that the eight dan.d.ana_yaka sealings from Bhita invariably bear the bull-la_n~chana. Apart from being a S'aiva device, the bull is also symbolic of Dharma. This symbol would really be the most appropriate for a judge who has to follow the tenets of the law scrupu;lously and enforce it impartially. The

bulls on the two Gupta sealings have a spherical object between their horns (Pl. IX, 3)...But the sealings from other sites noted above bear either the same device (bull) or have a chakra, peacock, etc...the chakra being reminiscent of the sudars'anachakra of Vis.n.u and the peacock of the va_hana of Maha_sena-Ka_rttikeya, the General of the Gods...In literature and later epigraphs, the term dan.d.ana_yaka (or maha_dan.d.ana_yaka) has sometimes been used to denote a military officer or an administrator. Sometimes the term is found combined with other offices (e.g. with kuma_ra_ma_tya and sa_ndhivigrahika). The office could also be hereditary. The title was also, at times, used by the feudatories, perhaps as a mere honorific." (K.K. Thaplyal, 1972, *Studies in Ancient Indian Seals*, Lucknow, Akhila Bharatiya Sanskrit Parishad, Pl. IX, Figs. 1 to 4; pp. 115-118).



1. Clay lump bearing impressions of the seal of the offices of (a) kuma_ra_ma_tya and (b) bala, Ahichchatra_, Antiquity section of the Arch. Surv. of India, New Delhi, no. AC II 4448; 2. Sealing of the military office attached to the Yuvara_ja-bhat.t.a_raka, Basarh, Indian Museum, Calcutta, no. A. 11315--NS 6159. (After K.K. Thaplyal, 1972, *Studies in Ancient Indian Seals*, Lucknow, Akhila Bharatiya Sanskrit Parishad, Pl. XIII, Figs. 5 and 6; pp. 110-120).

Sealing bearing the device of a lion and the legend Sena_pati In(dra)..., Bhita, Indian Museum, Calcutta, no. A 12247-NS. 1446. In front of the lion is the symbol, s'ri_vatsa.



S'ri_vatsa or Nandipa_da glyphs are derived from a pair of fishes as seen on many artifacts and on the necklaces worn by yakshi on sculptures.



S'ri_vatsa symbol [with its hundreds of stylized variants, depicted on Pl. 29 to 32] occurs in Bogazkoi (Central Anatolia) dated ca. 6th to 14th cent. BCE on inscriptions:

The symbol occurs in Mathura (ca. 2nd to 1st cent. BCE) and in Sa_n~ci_ (ca. 2nd –1st cent. BCE).









Sarnath, Va_ra_n.asi, UP, Railing fragment, Sarnath Museum, No. 422 (AIIS, VNS, A27.33)[Pl. XX, 8]

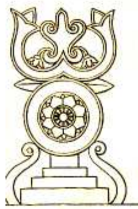
Bharhut Stu_pa, south gate corner pillar, c. 2nd cent. BCE, Indian Museum, Calcutta, 27.72, (AIIS, VNS, 242.34)[Pl. XX, 9]

Sarnath, Rail post, c. 1st cent. BCE, Sarnath Museum No. 420 (AIIS, VNS, 200.13)[Pl. XX, 10]

A Nasik cave inscription has s'ri_vatsa superimposed on nandipa_da symbol and is ascribed to ca. 2nd cent. BCE. [Note: nandipa_da is made up of two fish-tails joined together; s'ri_vatsa encloses a fish within two fish-tails].



The evolution of the s'ri_vatsa symbol is vividly described as related to a pair of 'fish'. This is apparent from the two fish-tails exquisitely sculpted on Sa_n~ci_ Stu_pa (c. 2nd cent. BCE) and also in Sarnath railings and Bharhut stu_pa:





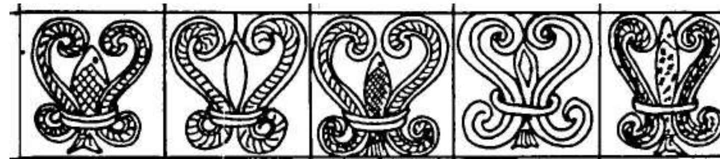
Such a composite, ligature glyph is cakra-tris'u_la, a pictograph which is part of the as.t.aman:gala-ha_raka: 1. sa_n~ci (cf. Fergusson Vol. I, p. 124); the wheel is above the panel depicting the life of Buddha in four parts; the wheel has eight petals and twelve spokes, representing the as.t.aprakr.ti and ana_hata cakra; within the trident, two lotuses are inlaid; 2. amara_vati sculpture; two triangular petals are shown near the trident.



Sa_n~ci_ stu_pa 1, Northern toran.a, east pillar, c. 1st cent. BCE (AIIS, VNS, 321.29). A pair of fish tails ligatured to form nandipa_da.

The association of s'ri_vatsa with 'fish' is reinforced by the symbols binding fish in Jaina A_ya_gapat.as (snake-hood) of Mathura (late 1st cent. BCE).

S'ri_vatsa symbol seems to have evolved from a stylized glyph showing 'two fishes'. In the sa_n~ci stu_pa, the fish-tails of two fishes are combined to flank the 'sri_vatsa' glyph. In a Jaina a_ya_gapat.a, a fish is ligatured within the s'ri_vatsa glyph, emphasizing the association of the 'fish' glyph with s'ri_vatsa glyph.



s'ri_vatsa symbol variants found at Kankalitila, Mathura, late 1st cent. BC: Jaina a_ya_gapat.a; in these five specimen, a fish is shown in the middle apparently bound by two snake-hoods on either side; apparently, this ligatured pictorial formed the basis for the evolution of the s'rivatsa symbol almost looking like a stylized trident. (After Pl. 30 C in: Savita Sharma, 1990, Early Indian Symbols, Numismatic Evidence, Delhi, Agam Kala Prakashan; cf. Shah, U.P., 1975, *Aspects of Jain Art and Architecture,* p. 77). An idential symbol is depicted at sa_n~ci stu_pa (Smith, VA, *Jaina Stu_pa*, p. 15, Pl. VII, L. Buhler, *Epigraphica Indica* II, pp. 200, 313; Agrawala, VS, *Guide to Lucknow Museum*, p. 4). The s'ri_vatsa also appears on the chest of a small Jina figure on a_ya_gapat.a (Shah, UP, FIgs. 11-12, J. 250 and J. 252, Lucknow Museum). Note the glyphs of two deer at the base; two heads are ligatured to one body, an echo of the orthographic style evolved during the mature periods of the Sarasvati Sindhu civilization.





Yaks.a and Buddhist symbol, toran.a, Sa_n~ci (Ananda K. Coomarawamy, Part I, 1980, *Yaks.as*, 2nd edn., Delhi, Munshiram Manoharlal, Plate 10, 2, p.40). Upper part of north toran.a, Sa_n~ci, with a cauri_-bearing yaks.a; showing also a symbol (often but wrongly styled vardhama_na). There was originally a Buddha triad consisting of a Dhammacakka between two Yaks.as. First of first century BC. S'ri_vatsa symbol is the centre-piece on this panel.

Yaks.i_ or Devata_, from Bharhut found at Batanmara; va_hanam, a running dwarf. India Office photograph. (Ananda K. Coomarawamy, Part I, 1980, *Yaks.as,* 2nd edn., Delhi, Munshiram Manoharlal, pp. 39,.40, Pl. 4, Fig. 1). The s'ri_vatsa symbol adorns her necklace close to her neck.

Thus, s'ri_vatsa symbolism is a evolved from mithuna or a pair of 'fishes' bound together. The pair of fishes is also a symbol included in the as.t.aman:galaka ha_ra together with other weapons, suggesting that the pair of 'fishes' are relatable to a category of weapons; hake = axe; hako = fish (Munda languages). The pair of fishes may be a symbolic representation of a double-axe.

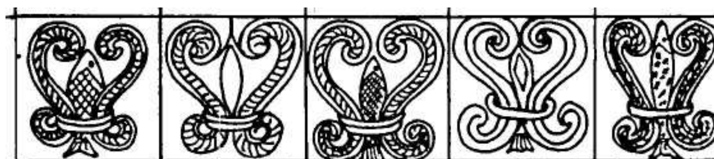
There are symbol variants of nandipa_ta (triratna) which also are an evolution from the symbolism of two fish-tails joined together, as in the case of s'ri_vatsa symbol. This is seen from the Jaina a_ya_gapat.as of Mathura where a circle is ligatured to the nandipa_da symbol.

BHIMBETKA	ROCKSHELTER PAINTING							
SĀÑCHI (C. 2nd 1st cent. B.C.)	EASTERN & NOTHERN GATE WAY							
SARNATH MATHURA (C. 1st cent A.D.)	STONE UNBRELLA							
MATHURA	JAINA - ĀYĀGAPAṬAS							

[Pl. 33, Nandipa_da-Triratna at: Bhimbetka, Sa_n~ci_, Sarnath and Mathura]



Sa_n~ci_ Stu_pa (Raisen, MP), c. 1st cent. BCE, Northern toran.a (AIIS, VNS, 321.11) showing the nandipa_da symbol ligatured with s'ri_vatsa symbol.



Sa_n~ci stu_pa with a glyph of two fishes ligatured. S'ri_vatsa symbol seems to have evolved from a stylized glyph showing 'two fishes'. In the sa_n~ci stu_pa, the fish-tails of two fishes are combined to flank the 'sri_vatsa' glyph. In a Jaina a_ya_gapat.a, a fish is ligatured within the s'ri_vatsa glyph, emphasizing the association of the 'fish' glyph with s'ri_vatsa glyph.

bed.a = either of the sides of a hearth; be = two (G.) **be_d.a** = one-eighth part; two-anna piece (Te.) Glyph: **bed.a hako** = fish (Santali) **hako** = axe (Santali) **be_d.isa** = a sort of carp, the silver-fish, cyprinus chrysoparius (Te.)

Grapheme: **be_d.i** = a chain, a fetter (Ka.Te.)

Native metal, (meteorite or washed) ron ore

Substantive (Washed iron ore): *aduru* native metal (Ka.); *ayil* iron (Ta.) *ayir, ayiram* any ore (Ma.); *ajirda karba* very hard iron (Tu.)(DEDR 192). For *aduru: acar-u* mud, mire; *acumpu* soft mud, miry place; *ayam* mud, mire (Ta.); *ayam* id. *ayar-u* manure (Ma.); *asalu* mud, mire (Te.)(DEDR 41). *ad.usu, ad.alu, ad.lu, had.lu, ad.i, ad.e, at.il, at.la* mud, clay (Ka.); *ad.usu* mud,mire (Tu.)(DEDR 82). *ayavu* washing; *ayakan* washerman (Ma.) *asaga, agasa, agasiga* washerman (Ka.)(DEDR 36). Cf. stone sand: *bali* iron ore, stone sand ore; *bali hasa* earth containing iron; cf. *luhui* sand stone (Santali)



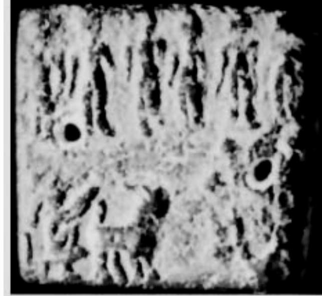
Kalibangan032a Glyph: *adar*, *adar d.an:gra* a brahmini bull, a bull kept for breeding purposes and not put to work (Santali)

adar. odor., adar udur fat and naked, over-grown, unwieldy; adar. odor.e calaoena he waddled away (Santali)

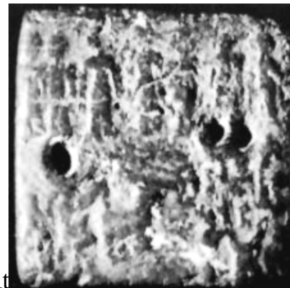
kambala dewlap (VarBr.S.); *kam.bala* dewlap of an ox (Pkt.); kamari dewlap (S.); *ka~_bal.* (M.)(CDIAL 2772). Metath. *galma_* dewlap of cattle (L.)(CDIAL 4071). Bull: *kambalin, ka_mali* (EI 24.IEG.) a bull; prob. a levy on prize bullocks; yamali-ka_mali, yamala-kambalin, yamalikambali, yamalika_mbali a tax known from the Ga_had.ava_la records (HRS.IEG.); yamala-patra treaty of alliance (LP.IEG.); yamala two (IEG.)



m1186Acolour  2430 Composition: horned person with a pigtail standing between the branches of a pipal tree; a low pedestal with offerings (? or human head?); a horned person kneeling in adoration; a ram with short tail and curling horns; a row of seven robed figures, with **twigs** on their pigtails.

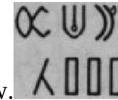


m0442At



m0442Bt



h097 Pict-95: Seven robed figures (with stylized twigs on their head and pig-tails) standing in a row.  4251

Trader, a bazaar shopkeeper

bha_gal.iyo = a bazaar shopkeeper (G.lex) baka_l.a (Ka.); baka_la = a shopkeeper with contemptuous implications (M.)(Ka.lex.) baka_l = [Ar. bakka_l, a greengrocer fr. bakchu_, vegetable] a petty shopkeeper; a va_nia (so called in contempt); baka_lu = fresh vegetables (G.lex.)

bagalo = an Arabian merchant vessel (G.lex.) bagala = an Arab boat of a particular description (Ka.); bagala_ (M.); bagarige, bagarage = a kind of vessel (Ka.)(Ka.lex.)

bagalo = a stork; a crane (G.)

bagal = the armpit; a side (Ka.); bagala (M.H.)(Ka.lex.) bagala = the armpit; the arm; a side (G.); bagal (Persian)(G.lex.)

ban:gala = kumpat.i = an:ga_ra s'akat.i_ = a chafing dish, a portable stove, a goldsmith's portable furnace (Te.lex.)

ba_kum, ba_korum = a bore; a large hole (G.lex.)

baghun., bagu_n = A snub-nosed or true crocodile (*crocodiles palustris*) found in India only in one lake in Sindh. It is identical with the species found in the Nile. In the Indian rivers the long-nosed variety (i.e., alligator) alone exists (P.lex.)

ban:gad.i_ a bangle, a bracelet of glass, gold, or other material, worn on the wrist by women (G.lex.) bhagan.a = a bangle (IA 19)(IEG) **ban:gan** = bangle (cf. Ka_li_ban:gan, black bangle: name of a site on River Sarasvati banks)

bha_gal.a = a gate in the wall of a town; the precincts of a village; bazaar (G.lex.)

bagal.a_ = name of a certain godess (Te.lex.) bagal.a_, bagal.e, vagala_ (Ka.); bakala_, bagal.a_, vagal.a_ (Te.); bagal.a_devi = one of the s'akti deities by means of which one may shut the mouth of an opponent, etc. (Ka.lex.) bakkula = a demon, uttering horrible cries, a form assumed by the Yakkha Ajakala_paka, tto terrify the Buddha (Pali.lex.) bahula_ pl. the Pleiades (VarBr.S.); bahulika_ pl. (Skt.); bahul (Kal.); ba_l, baul, balh (Kho.); bol, boul, bolh (Kho.); bale (Sh.)(CDIAL 9195). bahulegal. = the Pleiades or Kr.ittika_-s (Ka.lex.) **bahula_** (VarBr.S.); bahul (Kal.) six presiding female deities: vahula_ the six presiding female deities of the Pleiades (Skt.); va_kulai id. (Ta.)(Ta.lex.) 5719.Image: pleiades: bahulika_ pl. pleiades; bahula born under the pleiades; the pleiades (Skt.lex.) bahule, bahulegal. the pleiades or kr.ttika_s (Ka.)(Ka.lex.)

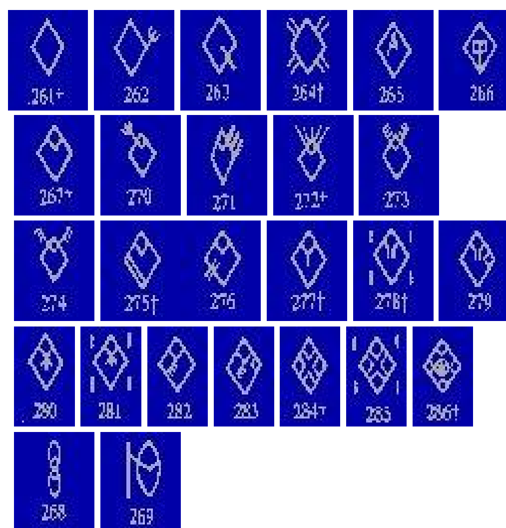
Corset kaccu = a kind of corset worn by Indian women in ancient times (Ta.); bodice to confine the breast (Ma.); kan~cuka (Skt.); kam.cu = woman's bodice (Pkt.); kan~cuka = bodice, armour (Pali); ka~_cva_ = a sort of waistcoat (M.); ka~_cu_ = bodice, shirt (H.)

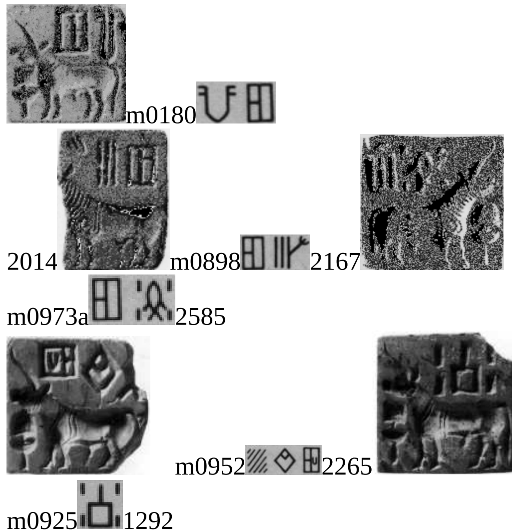
Pleiades kattiya_ (Pkt.); kr.ttika_ *pl.* (AV.); kattika_ the month October-November (Pali); katyu~_ pl. (S.); ka_tya_ (M.); khitti_ (P.); kati *pl.* (Si.) kr.ti (RV.)

kaciya_ = reaping hook (H.) kacca = to be cut off (Pkt.); kartya (Mn.); kattiya_ = scissors, shears (Pkt.); kati_ = goldsmith's or blacksmith's scissors (P.); ka_t (G.); ka_ti_ = scissors (A).

bagal.u, bogul.u, bol.l.u = barking, crying out (Ka.lex.)

5612.Two-wheeled cart: **bahal, bahali_, baheli_** two-wheeled cart (Bi.); bahal id. (H.); bahli_ two-wheeled cart drawn by two oxen (H.); bahaila cart (OMarw.); vhel, vel bullock-cart (G.); vahala accustomed to the yoke (S'Br.)(CDIAL 11458).





m0180 2014 m0898 2167 m0973a 2585 m0952 2265 m0925 1292

Glyph: *d.olligillu* ‘to fall or tumble over; *d.ollu* to fall (Te.)(DEDR 2988).

Glyph: *kachim, kachma, kachmi* tortoise (Santali)

Glyph: *a_s* scales of fish (Santali)
Glyph: *ayan: bin*: the cobra; *d.omba ayan:, kabra ayan:* a variety of cobra (Santali)
Glyph: *gad.* receptacle into which the rice to be husked by the d.hin:ki is placed (Santali)
Thus, the compound *bali gad.a* (iron stone mine) can be represented by the glyphs: bull + receptacle. Wherever the receptable occurs (in front of bull, elephant, tiger, buffalo), it may connote rebus: *gad.a* ‘mine’
Glyph: *ayil* javelin, lance, surgical knife (Ta.); javelin, lance (Ma.); *ayiri* surgical knife, lancet (Ma.)(DEDR 193).

Substantiv: *khapar* tin, a metal once used largely to make ornaments but now out of use (Santali)
Glyph: *khapri* the skull (Santali)
Glyph: *kaphariau* to quarrel, dispute (Santali)

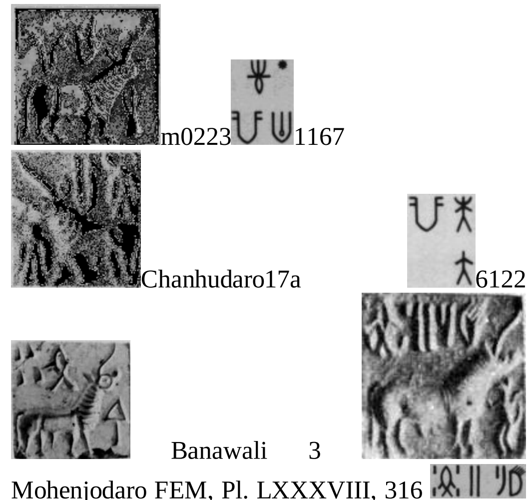
Monkey

mu_ka = an army; a crowd; multitude, host, swarm (Te.)

muhri = a king post (Santali.lex.)

mwehra_ = image of a village deity (WPah.)

mehara = (EI 33) a village headman (IEG).



m0223 1167 Chanhudaro17a 6122 Banawali 3

Mohenjodaro FEM, Pl. LXXXVIII, 316 2316
[The sign in front of the one-horned bull on seal m0223 may be Sign 162] [Note: On these seals, where one would expect to find a standard device, one finds a surprise: a standing monkey? or a stubble or a standing person or an arrow (spear?)].

The glyphs shown in front of the one-horned bull may all be interpreted as furnaces and other equipment of the artisan’s workshop, **kod.**

Sign 162
Alternative: pasra ‘sprout’; pasra ‘furnace’
‘tanding person glyph’ ka_ti ‘long trench furnace’
‘rrow glyph’ kan.d.a; rebus: kan.d.a ‘altar, furnace’

mu~h metal ingot (Santali); rebus: **muh** face (Skt.)

muhri, muhril = a clerk, a vernacular clerk (Santali.lex.)

garl = quill of feather (Ko.); **gar-i** wing, feather (Ka.); gari (Tu.); gari, gar-i (Te.); gar, -gara a long

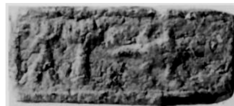
leaf (of millet, corn etc.)(Te.); gar (pl. gad.l) feather (Kol.); gar (pl. s'il) (Nk.)(DEDR 1394).

gar. = a fort, a palace (Santali.lex.)

kapi = monkey (RV); kapi, kavi (Pali); kavi, kai (Pkt.); kapi (OSi.Bra_hmi_); kiviya_ black monkey (Si.)(CDIAL 2746).

2213.**Hunting axe**: **kapi** hunting axe (Munda); **kepi** battle axe (Santali); **ka-pak** axe (Sakai). **kapi** a hunting axe with or without its handle; **hr.kapi** the smallest kind with an edge straight in the middle and corners horned backwards; **karakond.e** a triangular-bladed axe with straight edge (Pl.III,4); **tabala** an uncommon kind of karakond.e (Pl.iii,5); **ombakapi** an axe with concave edge and corners generally pointing forwards; **pharsi** an uncommon kind of ombakapi (Pl.IV,1); **burukapi** the most common axe with a convex edge or with an edge angularly protruding (Pl. III,6); **gand.as** the largest kind of axe (Pl.IV,2)(Mu.lex.) **kapi** = a battle-axe; bhalua kapi, hoedok kapi; khupa kapi; kheron kapi (small axe); ayar kapi; hado kapi, gudia kapi (broad axe); sikria kapi = potam cupi ten:goc (Santali.lex.)


m450At


m450Bt


2864

[One one side, the lizard is shown; and on the other, the monkey is shown; the epigraph seems to be the same. Thus, it is surmised that the same word may connote both 'monkey' and 'lizard': *dok*] Ths substantive is: possessions, occupancy: *dok*.

The rebus glyphs which connotes this substantive meaning 'possession, occupancy' are:

d.ok the neck; *d.okum* the head (G.) [cf. the rings on the neck of a one-horned bull]

Chanhudaro 6113 Pict-98





Bison (gaur) trampling a prostrate person (?) underneath. Impression of a seal from Chanhujodaro (Mackay 1943: pl. 51: 13). The prostrate 'person' is seen to have a very long neck, possibly with neck-rings, reminiscent of the rings depicted on the neck of the one-horned bull normally depicted in front of a standard device. [Alternative: Ship, catamaran **pa_r-u** (Ta.Ma.Ka.); pak-r-i = coracle, boat, ship (Ta.) Rebus: copulation **pa_ru** = to copulate, spring (IL 7339)]

khaeda khaidi = to tread on and leave foot marks (Santali.lex.)

kha~edak kho~edak, kha~endak kho~endak *pl.* a succession of pits or mines (Santali.lex.)

raunda = a carpenter's plane (Santali.lex.)

raunda raundi = to trample upon; raunda raundikedako = they trampled it down (Santali.lex.)

me_r.sa = toss, kick with the foot. miti = tread on (Ta.)(CDIAL 10299). mer..e = tossing (Ka.lex.)

me_d.hra = the penis (Ka.lex.) [Note the pictograph showing the penis of the bull which treads on something prostrate].

khu~_dna_ to trample on (H.); **khu~dvu~** to trample on (G.); **khum.dai** pounds, grinds (Pkt.)(CDIAL 3717).

kan.d.i = a furnace, altar (Santali.lex.)

kamd.a = to copulate (Santali.lex.) ka_n.du_ = lasciviousness; ka_n.dua_ = lascivious; ka_n.d.ua_i_ = wanton woman (Or.)(CDIAL 2688) [cf. the copulation scenes depicted on many seals and other inscribed objects].

kan.d.a, ka_n.d.a, ka_d.e, kan.d.ike = a stalk, a stem (Ka.lex.)

kan.t.u = the rim of a vessel (Ka.lex.) [cf. **kan.d. kanka** = rim of a pot (Santali.lex.)]

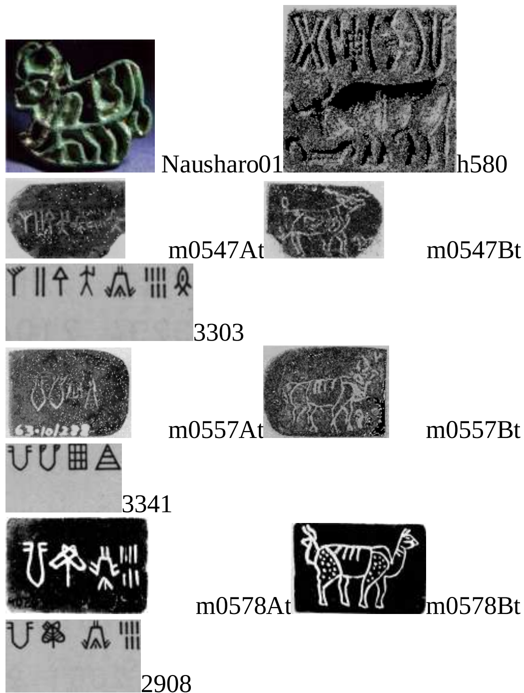
kan.t.al = a ba_bul tree (G.lex.)
kan.t.ha_l. = a double-sack (G.lex.)

Bull

Substantive: **bad.hi** = worker in wood and metal; rebus: **baddi_** = ox (Nahali)

Substantive: *bali* = iron ore, iron stone sand; the Kol iron smelters wash the ore from the sand in the river bed; *balgada* 'sand carried down by a flow of water' (Santali)
Glyph: *bel* [Hem. Des. *ba-i-lo* fr. Skt. *bali_vard*] a bull; a bullock; an ox (G.)

Glyph: *bal* 'to bore a hole, or to puncture, with a red hot iron' (Santali)
Glyph: *bala* 'a wristlet, worn by women' (Santali)



Nausharo01 h580
m0547At m0547Bt
3303
m0557At m0557Bt
3341
m0578At m0578Bt
2908

ko_li a stubble of jo_l.a (Ka.); *ko_le* a stump or stub of corn (Te.)(DEDR 2242). *ko_r*. a sheaf in the field (Go.); *xo_l* rice-sheaf (Kur.)(DEDR 2253).

ko_l.i banyan, fig, tree bearing fruit without outwardly blossoming (Ta.); an epidendron, grasping plant (some figs are of this nature)(Ma.); ko_n.i fig (Ta.); go_l.i all kinds of fig trees which bear no apparent flowers; banyan; ficus elastica (Ka.); go_n.i ficus elastica, ficus religiosa (Ka.); go_l.ida mara banyan tree, ficus indica (Tu.)(DEDR 2254). gullhar, gullar ficus glomerata (P.); gullar a particular kind of fig tree (N.); gu_lar ficus glomerata (H.); gular, guler, gulro (G.)(CDIAL 4218). kur-u-v-a_l jointed ovate-leaved fig (Ta.); kurivi-y-a_lan- a common avenue-fig having stout air-roots, ficus (B. 91)(Ta.lex.)

Blacksmith, kol 'metal'

kor-r-a = black murrel (Te.), kur_icci = a fish many sharp bones (Ma.)
kur-avai = murrel (Ta.)

kor-r-a = **ram (Ma.)**

Substantive: **koru** a bar of metal (Tu.); **kul.a** bar of metal, bullion (Ka.); **kor..u** bar of metal, bullion (Ta.)(DEDR 2147). **ka_r-u** bar [cf. **vel.l.i-k-ka_r-u** bar of silver, silver bullion]; limit, point, measure or extent of time, often used as an adverbial suffix; ploughshare (Ta.lex.); **tanka-k-ka_r-u** gold in bars, ingot (Ta.lex.) **kor..u** awl (**Tol. Pa_yi. Urai**); **kor..u-k-kat.t.utal** to fasten the share to the plough; **kor..u-t-tat.t.utal** to sharpen the ploughshare (Ta.lex.)

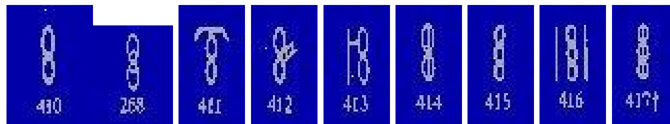
Glyph: *ur-ukku* to jump, leap over (Ta.); *uRk* to run away (Kond.a); *urk* to dance (Kuwi)(DEDR 713).
Substantive: *urukku* steel, anything melted, product of liquefaction (Ta.); *urukku* what is melted, fused metal, steel (Ma.); *uk* steel (Ko.); *urku, ukku* id. (Ka.)(DEDR 661).


m1406At


m1406Bcolour  2827 Pict-102: Drummer and people vaulting over? An adorant? Substantive: *bharatiyo* a caster of metals (G.); glyph: *bharad.o* a devotee of S'iva (G.)


terracotta human figures mehergarh017

kamsa kamsi = jump (Santali.lex.)
kam.sa = bronze (Te.lex.)


Glyph: *gotao* to thread, to string; saire sutamko gotaca they thread needles (Santali)
Substantive: *got.*, *got.h* The place where cattle are collected at mid-day; *got.ao*, *got.hao* to collect cattle together for their mid-day rest (Santali) *kod.* Artisans' workplace (G.) *gotga.rn* treasurer of the village (Ko.); *kottukka_ran-* head of a company of labourers (Ta.); *gottuga_r-a* headman (Ka.)(DEDR 2091).
Glyph: *xotor injo_* a kind of fish (Kur.); *qotro mi_nu* id. (Malt.)(DEDR 2095).
Substantive: *got.* Another name for the Sohrae festival; *got. gai* on the first day of the got. Puja or Sohrae in the evening all the cattle of the village are driven over an egg and the animal which treads on it is called the *got. gai* (Santali)

Orthography of the one-horned bull (ibex, urus) and the standard device

Heifer, pannier, one curved horn, rings on the neck

A vivid orthographic determinant of a one-horned bull is the ‘pannier’ which sets the context in which the ligatured animal should be ‘read’ rebus for the ligatured components:

heifer, pannier, one curved horn, rings on the neck;

vahur.o (alt. **damr.i**), **kan.t.a_l.a, kod., kod.iyum**: **va_kara,** ‘soldier’ [alt. **tam(b)ra** ‘copper’]; **kan.t.a_l.a**, ‘battle’; **kod.,** ‘artisan’s workshop’.

Message: copper (battle weapons) from artisan’s workshop; alt. soldier with weapons from artisan’s workshop.

kot.iyum = a wooden circle put round the neck of an animal; **kot.** = neck (G.lex.) [cf. the orthography of rings on the neck of one-horned young bull]. **ko_d.iya, ko_d.e** = young bull; ko_d.elu = plump young bull; ko_d.e = a. male as in: ko_d.e du_d.a = bull calf; young, youthful (Te.lex.)

ko_d.eka_d.u = a young man (Te.lex.) **kot.al** = watchman (Santali.lex.) kot.t.ika_d.u, ko_t.ika_d.u, kot.ika_d.u = watchman (Te.lex.)

kod. = place where artisans work (G.lex.) **kod.** = a cow-pen; a cattlepen; a byre (G.lex.) gor.a = a cow-shed; a cattleshed; gor.a orak = byre (Santali.lex.) got.ho [Skt. kos.t.ha the inner part] a warehouse; an earthen vessel in wich indigo is stored (G.lex.) kot.t.amu = a stable (Te.lex.)

ko_d.i = a kind of flag, an image of garud.a, basava, or other demi-god set upon a long post before a temple; cf. gud.i, temple (Ka.lex.) [Note the flag in front of a procession on an inscribed tablet]. kot.i = a flag (Ta.lex.)

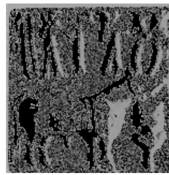
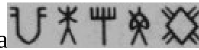
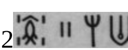
ko_d.i_ habba = a certain festival (Ka.); ko_d.adabbu, ko_d.idabbu, ko_d.edabbu = a demon worshipped by Pariahs (Tu.lex.)

ko_d. (pl. ko_d.ul) horn (Pa.); **ko_t.u** (in cmpds. **ko_t.t.u-**) horn (Ta.); **ko.r.** (obl. **ko.t.-**) horns (one horn is **kob**), half of hair on each side of parting, side in game, line marked out (Ko.); kwi.r. (obl. kwi.t.-) horn (To.); **ko_d.u** horn (Ka.); **ko_r..** horn (Ka.); **ko_d.u** horn (Tu.); **ko_d.u** rivulet (Te.); **ko_r** (pl. **ko_rgul**) id. (Ga.); **ko_r** (obl. **ko_t-**, pl. **ko_hk**) horn of cattle or wild animals (Go.); **ko_r** (pl. **ko_hk**), **ko_r.u** (pl. **ko_hku**) horn (Go.); **kogoo** a horn (Go.); **ko_ju** (pl. **ko_ska**) horn, antler (Kui)(DEDR 2200). Tailless he-buffalo; ox with blunt horns: ku_r..ai that which is short; dwarf snake, calamaridae; ku_r..ai-k-kit.a_, ku_r..ai-k-kat.a_ tailless he-buffalo (Ta.)(DEDR 1914). 1787.Image: horn: ku_t.a any prominence: a horn (Ka.); ko_d.u, ko_r.. a horn of animals; a tusk (Ka.)(Ka.lex.) ko_r.., ko_d.u a horn; ko_r..ke, ko_r..kil., ko_r..kil.im, ko_r..ge id. (Ka.); ko_d.u kut.t.u to strike or gore with the horn or with the tusk (Ka.); ko_d.u a horn of animals; a tusk (Ka.); ko_d.u-vi_sa the allowance of a vis of corn etc. for every bullock-load that comes into town etc.; kud.u the state of being crooked, bent (Ka.); kod.u (Ma.)(Ka.lex.) **ku_t.a** horn, bone of the forehead, prominence (Vedic); prominence, top (Pali.lex.) ku_t.a a horn; an ox whose horns are broken; ku_n.ika_ the horn of any animal (Skt.lex.) sin:ghin horn projecting in front (Santali.lex.) ku_n.ika_ the horn of any animal; ku_t.a bone of the forehead with its projections, the crown of the head; end, corner (Skt.lex.)

va_har., vohur., **vehar.** young bull (L.); vehir. heifer; va_hr.ka_, vehr.ki_ (L.); **vahar.,** vahir.a_, bahir.a_; vahir., bahir., vahir.i_, bahir.i_ (P.); **bahar.** young bullock (Ku.); bahar (N.); vahas shoulder of an ox (S;Br.); vaha shoulder of an ox (AV); vahata, vahatu = ox (Skt.); vaha shoulder of an ox (Pkt.); ba (A.); vahad.a calf to be trained (Pkt.); vahur.o young bullock (S.); vahur.i_ heifer (S.)(CDIAL 11459).vahu_ = working bullock (L.)(CDIAL 11455). ba_han = draught animal (N.A.B.); va_hana (Pali); va_han.a = driving (Pkt.); ba_han draught or riding animal (Mth.H.)(CDIAL 11610). va_hanika = living by draught animals (Pa_n.gan.a)(CDIAL 11611). va_ha = draught animal (RV)(CDIAL 11607). va_hamu = ox; any beast of burden or draught animal; a horse; drawing, carrying, pulling the shoulder (Te.lex.) va_han.a id. (Pkt.lex.); vaha_n. id. (G.lex.) va_hani_ya = a beast of burden (Skt.lex.) va_kam = va_hana (Skt.)(an animal carrying loads, a conveyance, a carriage, car, chariot, a horse; image of an animal used in temples to carry the idol upon (Te.lex); vahama_na hala bali_varda = bullocks used in ploughing land (LP, IEG); va_hana = load carrier; a cart, ship (LP, IEG) va_hanika = living by (tending or dealing in) draught animals (Skt.lex.)

Not a mythical bovine

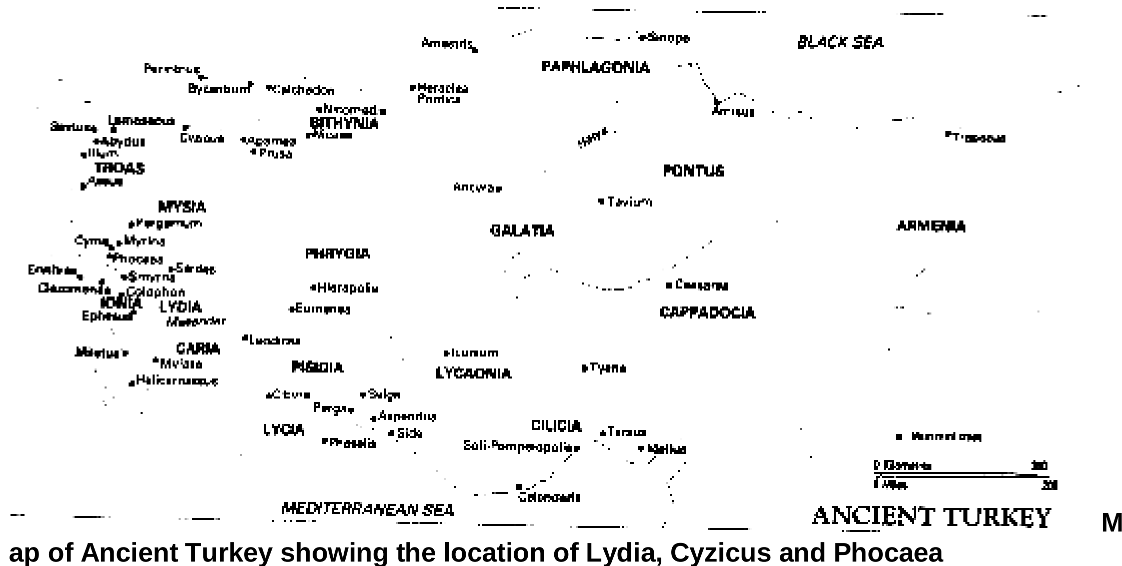
That it is a heifer (and not some mythical bovine) is surmised from (1) a differentiated orthography when compared to an old ox looking down; and (2) an orthographic variant, depicting a bull with two horns which is depicted on Seals m1077 and m0232. Since the semantic accent is on the curved horn, only one horn is shown, **kod**., 'artisan's workshop'.

 m1077a2359m02322234 'Unicorn' with two horns! "Bull with two long horns (otherwise resembling the 'unicorn')", generally facing the standard. That it is the typical 'one-horned bull' is surmised from two ligatures: the pannier on the shoulder and the ring on the neck. [The existence of a two-horned 'unicorn' provides a reasonable basis to infer and decode the 'one-horned' bull as a young heifer.]

Out of a total of 2906 inscribed objects (according to Mahadevan concordance), the one-horned, young bull occurs on 1159 objects; on 900 of these objects, the young bull is shown in front of a standard device. If the inscribed objects 'without texts' are reckoned, the number of inscribed objects discovered according to Parpola concordance are 3692: Collections in India: 1537; Collections in Pakistan: 2138; West Asia: 17.

The enigmatic orthography of the one-horned bull and the standard device is made further complex by the variety of styles used on inscribed objects. It would, however, appear, consistent with the orthographic patterns on many ligatured signs used for inscriptions, that the two pictorial motifs are also 'ligatures'.

Glyph of a one-horned bull on a Lydian coin



Map of Ancient Turkey showing the location of Lydia, Cyzicus and Phocaea





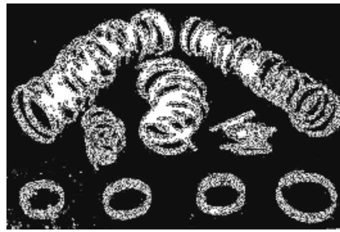
Drawings of ancient impressions of the cylinder seals of Lugalanda of Lagash, circa 2360 BCE. H. Frankfort, 1939, *A documentary essay on the art of cylinder seals.* The seal depicts an opposition between the lion and the one-horned bullo; the lion is biting into the neck of the bull.

This opposition is explained in the logographs on the early silver coin of Croesus, the King of Lydia. The earliest coins were all made of electrum, an alloy of gold and silver which occurs naturally in some of the rivers of western Turkey, including Pactolus, which ran through Sardes, the capital city of the ancient Lydian kingdom. The electrum coin of the seventh century BCE was a blob of metal distinguished by a single punchmark on one side and a basic pattern often consisting of little more than scratched lines, on the other. The early identifiable designs are animal shapes, including a lion's head, which became the standard badge of the Lydian kingdom, and a seal, known to be the badge of the city of Phocaea. Croesus, King of Lydia was reported to have issued the earliest pure gold and silver coins. One coin has the pictures of the foreparts of a lion and a bull and is dated to a period after the Persian conquest of Lydia in 547 BCE. The Persians issued, by the end of the sixth century, silver sigloi and gold darics (20 sigloi = 1 daric), depicting a royal archer. The cities of Cyzicus and Phocaea continued to issue electrum coins until the fourth century BCE.

Mesopotamians began casting and coiling the world's first cash, silver ring money, at least 4,500 years ago. (Courtesy Oriental Institute, University of Chicago); convenient form of cash: pieces of silver cast in standard weights. These were called **har** in the tablets, translated as "ring" money. At the Oriental Institute, the nine largest coils all bore a triangular ridge, as if they had been cast and then rolled into spirals while still pliable. The largest coils weighed almost exactly 60 shekels, the smallest from one-twelfth to two and a half shekels. [cf. Skt. **sarat**, thread; Hindi **zari** , Tamil carikai = gold or silver thread in textiles; **carat.u** = twisted thread, cord, twine; 2. a necklet of plaited gold thread (Tamil)

Silver rings: moneylike objects [**ghanagolaka** = alloy of gold and silver (Skt.); **ru_pya** = formerly in the possession of or possessed by Pa_n. 5-3 , 54; wrought silver or gold (Skt.)] The word, **ru_pa** (later rupee during British colonial regime) becomes a coin in the Bharatiya tradition.





Silver rings and coils from Mesopotamia. After Marvin A. Powell, p. 1489.

"There are objects of metal that have been suggested as precursors of coinage. They may have embodied some aspects of later coins. From the Ur III period comes a group of rings of silver to favourites of the king, usually on the occasion of their arrival from a journey. The rings numbered from one to five and weighed between 5 and 10 shekels (between about 40 and 80 grams, or about 1.5 and 3 ounces). We do not, however, see that these rings were used in other ways as money. Their production may have been a convenient way to distribute and to keep silver.

"Text references from the Old Akkadian period through the Old Babylonian refer to the casting of precious metals into rings, and it is certain that such objects were used at least for storing the metals and possibly served other functions of money. The Ur III texts about casting show that the ring did not always contain the full weight of the silver that was supposed to go into it, but such objects were weighed when they were exchanged anyway. The ring as a kind of money appears in the old Babylonian period when one of the wheeling-and-dealing priestesses in the northern city of Sippar referred to land she bought as paid for with her 'ring (money).' As with the silver rings of Ur III, there does not seem to have been any other use for the items, if in fact silver rings physically existed and the term did not refer to freely disposable spending money (English 'pin money). After the old Babylonian period there is no further textual evidence of rings used as money.

"Other terms continued to be used in ways suggestive of a systematization of exchange. Some silver may have circulated as s'ibirtu (broken) pieces, and beginning with the Middle Babylonian period the term bitqu (a cutting, one-eighth shekel) was used. Other bits were termed nuhhutu (trimmed?) from a verb meaning 'to trim or clip'; shaving rather than coining may be intended. Some metals were said to have ginnu on them, perhaps a mark indicating weight or purity. (Skt. cinha = token, mark)...

"In Old Babylonian Mari and also in the late second millennium at a number of sites there was an exchange of gold and silver cups that may have had a standardized weigh, though exts show that they had to be weighed when they were exchanged. These cups may have had the function of a special-purpose money. At Mari it is clear that the distinction was made between the actual weight of such actual weight of such objects and their value, which usually was higher.

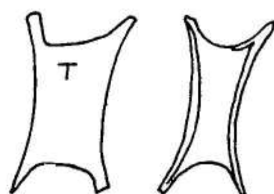
"Two literary texts from Ugarit on the Syrian coast contain comparisons of tears to shekels and to quarters and fifths of shekels, presumably of silver. These references may imply that silver weights were recognizable and had some of the characteristics of later coins.

"At Asshur (modern Qala Sharqat) in northern Iraq, leaden 'roundels,' little round bits o lead stamped with a decoration on one side only, from the Middle Assyrian period have been found. It has been proposed that they were used as small change in a system approximating coinage. But we do not have references to them in very large numbers. They may have been more decorations than a means of exchange.

"Texts from Neo-Assyria times refer to stamped ingots of bronze that embody fixed, government-certified weights and may have served as a means of exchange in very large denominations. When mentioned in actual documents, ingots were usually connected with loans from temples, and they may have been issued with loans from temples, and they may have been issued by the temples. Silver ingots of this period from Zincirli (pronounced Zinjirli) in Turkey have incised or stamped inscriptions reading 'belonging to Bar-rakkub, son of

Panamuwa,' a king known from other documents. Though the inscription might indicate that the objects belonged to the royal treasury, it might mean that the weighs of the silver were guaranteed by the king. Three such objects are known; they are disks about 9 centimetres (about 3.5 inches) in diameter and weighing, respecively, 497, 450, and 255 grams (17, 16 and 9 ounces), equivalent to about 60, 50 and 30 shekels. The two found in archaeological contexts were in a palace.

"Another group of ingots that is nearly contemporaneous comes from Nushi-i Jan, southeast of Hamadan in Iran. It includes silver bars, two of which weigh 12 shekels each (about 100 grams). Though ingots with no inscriptions certainly circulated, the existence of the inscribed variety suggests that one of the advantages of later coinage may have been envisaged, the notion that an official certification in the form of a stamped or incised inscription might reduce the need for weighing. Similar ingots of copper have been found without decipherable stamp impressions, and several stamped ones were found in a ship-wreck from around 1300 BCE off Cape Gelidonya in southern Turkey. These are called oxhide ingots because, to facilitate heir hanging and transport, they were shaped to look like the cured skin of an ox. Since they varied in size and weight, it is unlikely that those ingots formed part of a monetary system...



Ingot from Cape Gelidonya, Turkey. After: Institute of Nautical Archaeology, Texas A&M University, College Station.

"We can infer that because of their heavy weight and their rarity, none of the ingots, and probably none of the rings, served as a common currency for ordinary people. The ingots may have served as standards of value, as a mode of payment for big purchases, and certainly as stored wealth, but it is unlikely that they were a widespread means of exchange. Had they served as such, we would probably have found many smaller ingots in excavated sites. Even though the ingots cannot be regarded as a form of coinage, it is nevertheless important not to claim that 'true' coinage developed only in Greece. Here, as in other areas of cultural endeavour, the Greeks were building on ancient near eastern experience. Coinage was not another 'Greek miracle' but a development from earlier practices, and various moneylike objects may have been foreruners.

"Metallic exchanges. Metallic exchange and exchanges using other money systems are much better attested. For modern people used to economies that function on a single standard, the variety of media for exchange can be confusing. Metals were imported to Mesopotamia but were available on its periphery, and copper, bronze, gold, and silver were all used as money in the sense at least that they were paid for other things. In most periods the money preference was silver, probably because of its greater variability than gold and, hence, its relatively lower value.

"Silver and other metals, were weighed on a scale to determine the amount, and if smaller amounts were needed, the metal block or wire was broken into smaller pieces that were then weighed. Ancient texts do not describe the physical process of weighing, though it is constantly referred to. We derive some of our notion of the process from the etymology of the Akkadian word for silver, *kaspum*, meaning 'the broken thing'; cognate words are found in most of the other Semitic languages, including Biblical Hebrew's *kesep*. [kaiyacital = to be broken-hearted, to be disabled].

"Other terms in Akkadian indicate that broken bits of silver were frequently used, and the process of breaking metals and weighing them is widely attested for precoinage eras in many language. Though this process seems cumbersome to people used to dealing with coins, it continued long after coinage was introduced.

"For example, an Ur III text shows the purchaser of a slave weighing silver:

1 [man?], his name Itur-i[lum], his price 6 shekels of silver, the supervisor of the house of the godess Inanna weighed out to Lugal-usar, the merchan. (Translation by Piotr Steinkeller, *Sale Documents of the Ur-III Period*, 1989, pp. 172-173).

“During the third millennium BCE, traders from Early Dynastic Shuruppak (Fara) used metals as money; Enkhegal, prince of Lagash-Girsu, used copper and grain; and Uru-inimgina (Urukagina), a later ruler of Lagash-Girsu, required some taxes and fines to be paid in silver.

“In the middle of the third millennium BCE, Ebla (modern Tell Mardikh) in northern Syria had huge amounts of silver, which probably indicates that the metal there was used not just as a unit of value but also as a means of payment. The texts appear to distinguish between amounts of silver used as equivalents of goods, and those that were prices; we do not know what that distinction really meant.

“In other instances before Sargon of Akkad, grain was used as money, and in the obelisk of Manishtushu, recording that kin’s land purchases, the price was calculated both in grain and in silver. Officials were paid in silver, and even workers sometimes got silver in the Old Akkadian period. Copper was used less and less as money and apparently came to be valued solely for its industrial uses.

“In the Ur III period in southern Mesopotamia the government at the city of Lagash-Girsu used barley as a standard to evaluate goods it distributed, but it used silver to pay for gods bought from persons not directly under government control. Rations or salaries were thus paid in grain, and funds, stated in terms of grain, were moved from one government to another. When goods were purchased from private individuals and groups, though, slver was the money of choice. A conversion ratio was conventionally assumed of one shekel (8.33 grams or .3 ounces) of silver being equal to one gur (about 306 litres or 8.5 bushels) of barley; this conversion was a frequently attested price in the period, but it was not the only price. The scribes chose it for its convenience and relative constancy for their internal accounting; by using it, they did not have to refer constantly to the current market price...

“In the same period (third millennium) in another southern city, Umma (modern Tell Jokha), silver was used by merchants on government purchasing missions o buy both domestic and foreign products. The merchant overseers recorded the prices in silver boh o goods regarded as capital and of the goods purchased. The capital frequently consisted of grain and other agricultural goods the government produced; the merchants apparently changed it into silver to make their purchases...

An Old Akkadian King buys land

“A monumental text from about 2260 BCE records the king purchasing land from several families. He paid in grain, the price of which was then calculated in silver, along with miscellaneous objects and articles of clothing. But the latter appear only as part of the additional gift to family members selling fields. The firs section of the text is as follows:

> [ ] Manishtushu, the king...bought\
> [439 iku of land]
> [its price]
> [1463.1.2 of barley]
> [---the price of]
> [1 shekel of silver]
> [being 1] measure of barley --
> its silver (price) is
> 1.463 1/3 shekels of silver,
> the price of the field,
> 219 2/3 shekels of silver,
> additional payment of the field. (From Ignace Jay Gelb et al., *Earliest Land Tenure Systems in the Near East: Ancient Kudurrus*. 2 vols., 1991).

“The Old Assyrian trade used silver as a money when trading textiles and tin, imported via Elam, for Anatolian silver and gold. The traders were apparently private entrepreneurs who made tremendous profits, usually without government interference...

“The ratio between the values of silver and grain continued (upto the first half of the second millennium) to be approximated at one shekel of silver to one *gur* of grain...

“In the Akkadian correspondence preserved at al-Amarna in Egypt, a great deal of exchange is recorded among royal courts of western Asia. Gold was the major commodity Egypt was trading. By then, gold had become the standard of value in international affairs, perhaps due to its increasing availability when Egypt could extract it from deserts east of the Nile and acquire it in tribute and exchange from peoples in Nubia and farther south...

A Third-Millennium Merchant’s Account

“The merchants of Umma in the Ur III period reported their capital and their purchases, and gave the silver values of each commodity.” An excerpt from one of their texts follows:

79 shekels, 97 grains of silver, balance carried forward of the sixth year of Amar-Suen
630 pounds of wool, its silver worth 69 shekels
50 pounds wool, its silver worth 58 shekels (registered?) the first time



300 pounds KU.GI-wool, its silver worth 30 shekels
its loss is 10 shekels
via Lu-Enlila
30 gur of dates, it silver 25 shekels
Total: 265 shekels, 88 grains of silver
It is the capital.
Expended from within the above:
89 pounds of a resin, its silver worth 6 shekels, 160 grains
29 1/2 pounds of another resin, its silver worth 2 shekels, 80 grains
...Total 130 shekels: 43 1/2 grains silver.
It is what was expended.

Remainder 135 shekels, 44 1/2 grains.
Balanced account of Ur-Dumuzida, the merchant. (From D.C. Snell, *Ledgers and Prices: Early Mesopotamian Merchant Accounts*, 1982).

Clay tokens.These clay tokens from Susa, Iran, around 3300 B.C., represent (clockwise from top left): one sheep, one jar of oil, one garment, one measure of metal, a mystery item, one measure of honey, and one garment. (Courtesy Denise Schmandt-Besserat)



The world's first coins, made of electrum, a naturally occurring alloy of gold and silver, were minted in Lydia during the seventh and sixth centuries B.C. (American Numismatic Society)

Ephesus, Lydia (time of Gyges (687-652 BCE). The earliest known coin. After N. Angell, *The story of money*, 1929. One of the glyphs is comparable to a bun-shaped copper ingot found in Lothal.

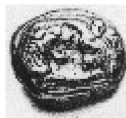
Lydian coins One coin shows an antelope with its head turned backwards comparable to the glyphs which appear on many epigraphs of the Sarasvati Civilization.



[Daniel C. Snell, Methods of exchange and coinage in ancient Western Asia, in: Jack M. Sasson, ed., 1995, *Civilizations of the ancient Near East*, New York, Charles Scribner's Sons, pp. 1487-1497].

Late seventh century BCE Electrum Stater from western Turkey561-547 BCE Silver stater attributed to Croesus, King of Lydia (ca. 560-547 BC) (After Kurt Regling, 1959, *Ancient Numismatics*, Chicago, Argonaut Inc.)

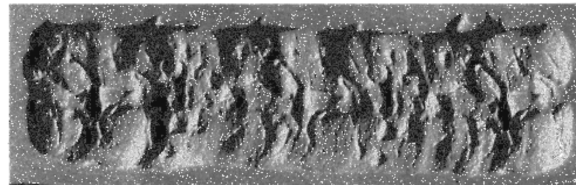




Opposition between the Lion and the One-horned Bull depicted on early silver coins

The opposition beween the lion and the one-horned bull is a representation of **ara_** (war, lion); rebus: **ara** = copper (Akkadian). Damr.i 'copper, one-eighth of a pice' (Te. Santali); **damr.a** = heifer, steer (Santali)

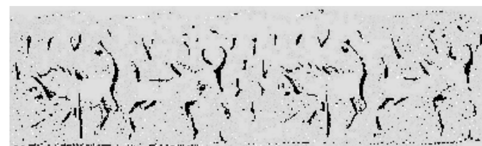
Iconography of 'unicorn'; the head and neck are decorated in three different styles: a collar, a hatched face and a hatched neck; the hatched face style is associated with Harappa and Sarasvati sites; collared neck style is found around Mohenjodaro: Paul C. Rissman, 1989, The organization of seal production in the Harappan Civilization, in: Jonathan Mark Kenoyer Ed., *Old Problems znd New Perspectives in the Archaeology of South Asia*, Madison, Wisconsin Archaeological Reports, 2: 159-70.





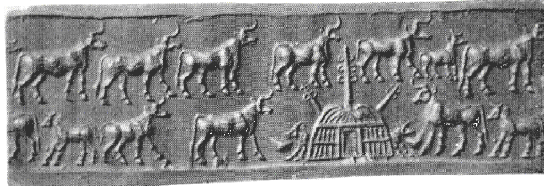
Sibri-damb02a Zebu Cylinder seal. A lion attacks a zebu bull; a person with upraised arms [A lion attacking a one-horned bull is a motif shown on early Lydia coins.]

Sibri-damb03a Zebu on Sibri cylinder seal.



Sumerian Jemdet Nasr seal with 13 unicorns (Sarasvati seal style)(Frankfort, 'The Indian civilization and the near East, *Annual Bibliography of Indian Archaeology*, 1932, p.3, and pl.1) Is this comparable to a pictograph on a Jamdet cylinder seal?:

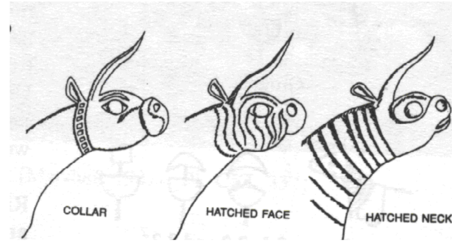
Cylinder Seal; Louvre, ca. 3000 BCE



Decorations on the head and neck of the 'unicorn'

The one-horn on a bull is found on Mesopotamian pictorial motifs.

Two bisons standing face to face is a recurring pictorial motif on many tablets and inscribed objects. This motif has a parallel from Nippur plaque of Mesopotamian civilization.





Clay relief stamped with the figure of the Babylonian hero Gilgamesh, holding a vase from which two streams of water flow. (British Museum No. 21204)





Fragment of limestone sculptured in relief with vases from which streams of water flow. (British Museum No. 95477) [Leonard W. King, 1916, *A History of Sumer and Akkad*, London, Chatto and Windus, p.73)

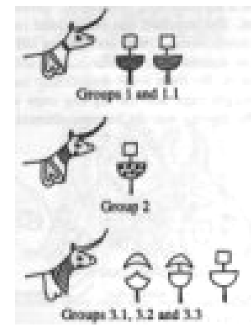


Animals depicted on a gaming board (Mesopotamia)

Engraved shell plaques, Telloh, 3rd millennium BCE (London) [Note the trident, spears and the lion biting into the neck of the one-horned bull].

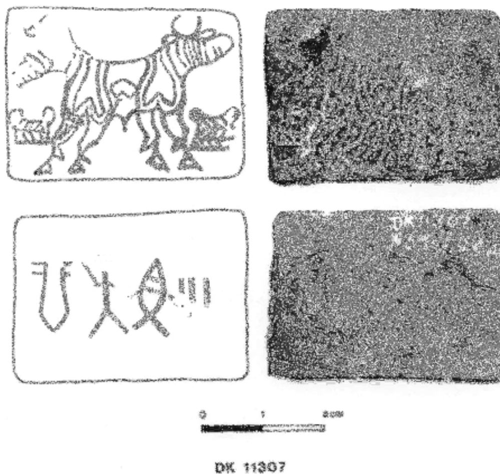
Three groups of 'unicorn' seals; cf. Franke-Vogt 1992: fig. 13.3

I	a	b	c	d	
II	a				
	b	c	d	e no cult object	
III	a	b	c	d	e
IV	a	b	c	d	



Group 1: hatched face animal (with zig-zag or straight cage on the standard) is associated with the north, around Harappa and the Sarasvati river

Group 2: (with collared necks and straight cage on the standard) is found in the south, around Mohenjodaro cf. Rissman, 1989: 168. [After Table 1-2 (p. 433) iconographic criteria applied in arranging the 'unicorn' seals in Parpola corpus-2 Collections in Pakistan].

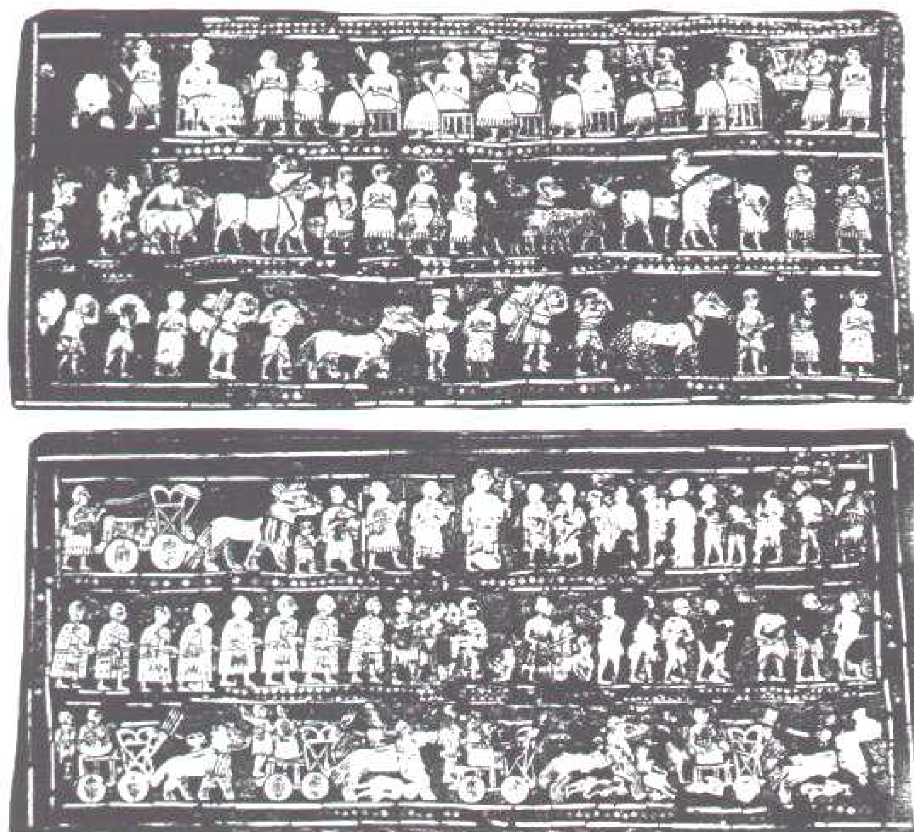


Mohenjo-daro. Copper tablet DK 11307 (SC 63.10/262). "To the incunabula of the Harappan script belongs a hitherto unrecognized depiction scratched into a rectangular reddish 'copper' tablet on deposit in the Study Collection of the Archaeological Survey o India in Delhi…the tablet did not appear in EJH Mackay's excavation report of 1938 for Mohenjo-daro… On the obverse the position of the hooves, legs and the drawin gof the shoulders leave little doubt as to the iconography. Two front halves of conjoined bovids point respectively to the left and right. Moreover, flanking this phantastic creature are two 'altars' which otherwise only appear in front of the creature depicted on Harappan seals and copper tablets. The right head is well-preserved. Visible are horns, ears, and vertical stripes, as in the case of the unicorns which appear on Harappan sealstones….Reverse…four signs are intact and legible…" Paul Yule, Bochum, A new copper tablet from Mohenjo-daro (DK 11307) in: *Interim Reports Vol. 1: Reports on Field Work carried out at Mohenjo-daro, Pakistain 1982-83 by IsMEO-Aachen University Mission*, ed., Michael Jansen and Gunter Urban (Aachen: RWTH-IsMEO, 1984), 69-70].

The copper tablet DK 11307 Mohenjodaro shows conjoined bovids (with 'unicorn' stripes on the face) with two 'altars' in front. Four signs on reverse. (Jansen and Urban, 1987, p. 71). [The stylised pannier on the bovids is an indicator that a 'unicorn' (ibex/urus) is depicted with two horns. The 'altars' may be 'troughs' which normally appear in front of other animal pictorials such as the bison, tiger, elephant or rhinoceros.]

Cylinder seal; Louvre, ca. 3000 BCE





The so-called 'royal standard' from a tomb at Ur: a mosaic of shell figures on a background of lapis-lazuli; height 20 cm. The object is perhaps the sounding-box of a musical instrument.

Side 1: victory celebration; the vanquished bring tribute, wild asses, bales of goods, meat and fish; the king wears his sheepskin shirt and sits on his throne; scenes of drinking and rejoicing; agricultural activity.[Note the one-horned bull and ibex]



Side 2: top register shows prisoners being led before the king; some are naked, others wear kilts with a zig-zag hemline; the king stands on the ground, towering above the others (primus inter pares); top: infantry soldiers wearing helmets and stiff cloaks march to war with spears and battle-axes; bottom: a row of four war chariots going into battle; a leading chariot has its wheels rolling over bodies of fallen enemy soldiers; the charioteer and men with light spears ready to hand in quivers.



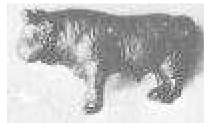
Detail from the Standard of Ur depicting the one-horned bull and other scenes.

Sind Ibex (Capra aegagru, Erxleben or Capra

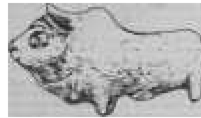
hircus, L.);Yellow limestone statue; U 81036; Mohenjodaro Museum (H: 16.5 cm.; L: 22 cm; B: 12.3 cm.) [loc. cit. Jansen and Urban, 1987, p. 67].



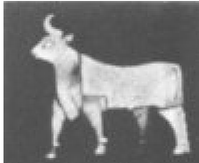
Ram's body and the elephant's trunk; SD 1109; Stone statue; Mohenjodaro Museum 430 (H 25.5cm; L: 19.5 cm; B: 13 cm.)



Kalibangan: copper bull (ca. 2300 to 1750 BCE, Period II); Pl. XXV, Possehl, ed., 1979, Ancient Cities of the Indus.



Mehrgarh; stone bull, Period I, Neolithic (5378+/-290 and 5182+/-80 BCE); Jarrige, Jean Francois, *Frontiers of the Indus Civilization*, Fig. 33.3 Towns and Villages of Hill and Plain, in 1984,



Inlay of a bull; Tell El-obeid, ca. 3300 BCE



Bull-god and godess, Susa, 2nd millennium BCE (Paris) [Note the high quiver holding 5 spears indicating a hieroglyphic semantic link between the bull icon and weapons]. There are ligatured pictorials on the seals and tablets of the Sarasvati Sindhu civilization depicting a horned person with hoofs and tail.

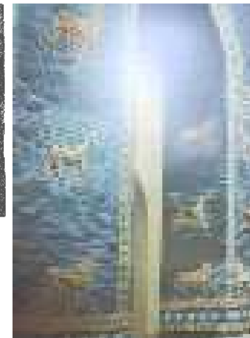
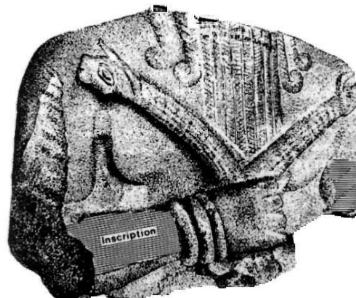


Image of the Ishtar gate. From the Babylon of Nebuchadnezzar Dr. Koldewey recovered the magnificent Ishtar Gate. It has been restored and erected in the Berlin Museum. Note the depiction of the one-horned bull.



One-horned bulls. Terracotta figures from Chanhujo-daro. The representation of this animal continued till early historic period in Central Asian art. [Source: Page 22, Fig. 11B in: Deo Prakash Sharma, 2000, *Harappan seals, sealings and copper tablets*, Delhi, National Museum].



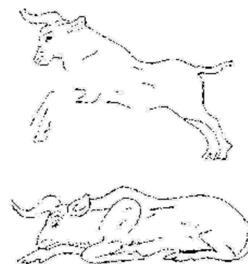


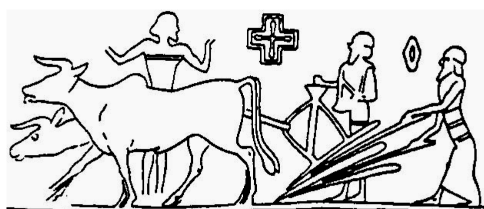


White limestone statue fragment from Susa, possibly representing the god Napirisha, patron deity of Untash-Napirisha. (Sb 67 = Pl. 7.4) Detail of the inscribed forearm of Sb 67. Musee du Louvre, Antiquites Orientales The statute of, or commissioned by, Untash-Napirisha are thought to have been brought to Susa by the later Middle Elamite III ruler Shutruk-Nahhunte, who says in one of his inscriptions, 'I (am) Shutruk-Nahhunte, son of Hallutush-Inshushinak (the beloved servant) of (the god Inshushinak). I removed the statues which Untash-Napirisha had placed in the siyankuk when Inshushinak, my god, demanded it of me, and at Susa dedicated them to Inshushinak, my god' (Konig 1965: 75-6, #21). "The siyan-kuk where Untash-Napirisha originally displayed these works was at Al Untash-Napirisha, modern Choga Zanbil, an entirely new

city founded by the king approximately 40 km. Southeast of Susa." [cf. Amiet 1973a: 18, Spycker 1981: Fig. 75, p.307; Pl. 7.4 and 7.5 and Fig. 7.5 in: DT Potts, 1999; F. Vallat, 1988, Legendes elamites de fragments de statues d'Untas'-Napiris'a et Tchogha Zanbil, *IrAnt* 23, 169-77]

One-horn motif on Mideast bulls (bos primigenius). A relief of a hunting scene at King Ashurnasipal's palace. Nimrud. [After Fig. 21.1 in: Caroline Grigson, Some thoughts on unicorns and other cattle depicted at Mohenjo-daro and Harappa, in: Bridget Allchin, 1984, *South Asian Archaeology 1981*, Cambridge University Press].





A Babylonian seed-drill; from a Kassite seal impression. University Museum, University of Pennsylvania, Philadelphia. That one-horn on the bull is an artistic style is apparent from this seal impression and a similar style is apparent in many inscribed objects of SSVC depicting the one-horned bull.

One-horned heifer (damr.a), artisan's workshop

Ligaturing components of the composite motif:

> **Heifer (steer), pannier, rings (on neck), one horn:** *damr.a, pakha_l, kan.d.hli_ (kot.iyum), kod.*
>
> **Artisan's workshop for: copper, steel, beads:** *ta_mbra, paghal, kandl, kod. (kod.iyum)*

damr.a 'heifer, steer'; *ta_mbra* 'copper'

go~r.e~ a pannier, a bag slung across a bullock's back, one on either side (Santali)
gote, *gotle* wry, oblique (Santali)

*got.i_* 'lump of silver' (G.)

> Glyph: **pakha_l** (Skt. payah, water + khala, skin] a double water-skin carried on a bullock [Ligaturing element, hence, rebus substantive: *paghal* 'steel'.]

Glyph: kan.t.hla_ (H.) **kan.d.hli_** (P.) = ring round the neck; necklace of beads(See the rings on the neck of the bull)
kot.iyum a wooden circle put round the neck of an animal (G.)
Substantive: *kan.d.hli_* (P.) = necklace of beads kandi = necklace, beads; kandl = beads (Ga.)

kod. 'horn'; *kod.* 'artisan's workshop'; *kod.iyum, kod.* place where artisan's work (G.)

A characteristic ligature on a one-horned heifer is the pannier.

> Glyph: **pakha_l** (Skt. payah, water + khala, skin] a double water-skin carried on a bullock; pakha_la_, pakha_laci_ = the driver of a bullock carrying a pakha_l, a water-carrier (G.lex.) [Note the accent on the pannier ligatured to the one-horned bull-heifer]. *paghaia d.an:gra* a pack bullock (Santali) [Note the pannier on a one-horned bull]. **pakka_l.i ma_t.u** 'water-carrier bullock' (Ta.)

Substantive: **paghal** = steel; *paghal me~r.he~t lagaoatinme t.an:ga dharre* = apply some steel to the edge of my axe (Santali); *pagha_l* (H.)(Santali.lex.Bodding) pa_kala = quite black (TS.)(CDIAl 8024). *paghal* pig-iron (Santali.lex.)

Thus, the ligatured heifer + pannier connotes two minerals: **ta_mbra** (copper) (glyph: **damr.a** 'heifer, steer') + **paghal** (steel)(glyph: **pakha_l** 'pannier')

*pagela_* a harmless snake (Ka.); *pagele* a kind of harmless snake (Tu.)(DEDR 3809). [Ligaturing element in a composite animal; hence, rebus substantive: *paghal* 'steel'.]

pagal.i, pagari arrow, dart (Tu.); *pakar..i* arrow (Ta.Ma.)(DEDR 3806).

pagad.e = a die (or cowry) for playing; a kind of back-gammon; a mark on a die (Ka.); pagad.a_ (M.); pakat.ai (Ta.); pagad.e, pagid.e (M.); pagad.e = an ace on a die (Ka.lex.) pagad.a = one (at dice), an ace; same as pad.aga (a snake's crest or hood; a flag, a banner (Te.lex.)

pagad.amu = coral (Te.lex.)

pa_gad.amu = a silver ornament worn by women round the ankle (Te.lex.)

pan:gat.i = forked, bifurcated, bifurcate, pronged, placed wide apart; **pan:gat.i ka_l.l.u** = widely separated legs, bandy legs (Te.lex.)

pa_gal, pa_gara, pa_gala, pa_ga_ra (Tbh. of pra_ka_ra) = an encircling wall, a surrounding wall elevated on a mound of earth, a rampart, a fence, an enclosure (Ka.lex.) [Note the glyph of an enclosure ligatured with a wide-mouthed pot].

pagad.e = a tree, frequently cultivated, mimusops elengi (Ka.); pogad.e (Ka.Te.); a small tree, wild and cultivated, nyctanthes arbor tristis (Ka.Te.)(Ka.lex.)

bali iron stone sand, iron ore (Santali)
bali bullock (Skt.)
damr.a a steer, a heifer (Santali)
ta_mbra copper (Ka.); **damr.i, dambr.i** one eighth of a pice (Santali) **damd.i_, damd.o** lowest copper coin (G.) **ta_mbad.a** copper plate; **ta_mbad.i_, ta_mbad.o** a copper pot; **ta_mbum** copper (G.)

Thus, another animal may be ligatured to indicate another types of mineral treated in the furnace/hearth:

melukka 'copper'; **melh** 'goat or antelope'



Amri06 Ligatured animal **san:gad.i** = joined animals (M.) **sagad.i_, saghad.i_** a pan to hold live coal or embers; a fire-pan; a portable iron grate (G.) **san:gha_d.iyo** worker on a lathe; **san:gha_d.o** a lathe (G.)

The zebu bull is a unique case since it connotes native metal:

aduru 'native metal'; **adra** 'bra_hman.i bull'

Glyph: *vahur.o* young bullock (S.); *vohur.* heifer (L.); *vahar., vahir.* heifer (P.);(CDIAL 11459). *paghaia d.an:gra* a pack bullock (Santali)

berga small of stature, undersized, as an ox; *berga d.an:gra okaenae*? Where is the undersized ox? (Santali.)

Substantive (trader) [*begri* lapidary (H.)] *vahoro, vohharo*: *vahoro, voro* (Hem. Des. *vohharo* = Skt. *ma_gadha* a mixed tribe, a bard) a trader, a *bora_*; an individual of a particular sect of Indian Muhammadans (G.) *vaha_n.a* a ship, a vessel; *vaha_n.avat.i_* a merchant who carries his merchandise in ships to a foreign country; a great merchant (G.) *vahivat.* Business, traffic; *vaheva_r* transaction, dealings; *vaheva_riyo* a dealer; a man of credit (G.)
Glyph: *vaheravum* to saw (wood); to cut timber with a saw; *vahera* sawdust (G.)

veggal.a, veggal.e, eggal.a, heggal.a a great man (Ka.); *veggali~_d.u* a great or extraordinary man (DEDR 5467)

Substantive: *garn.d.a_lu* a stalwart man, giant (Kod.); *gan.d.a~_d.u* a brave, strong man (Te.); *gan.d.i_ra, gan.d.a* hero (Skt.); *gan.d.a* a strong, manly male person (Ka.); *gan.d.* male (Ko.); *kan.t.an-* warrior (Ta.); gan.d.u manliness (Ka.)EDR 1173)
Glyph: *kan.t.ha_li* a bag having opening in the middle (M.); *kan.t.a_l.am* traveling sack placed on a bullock, pack-saddle (Ta.); *kan.t.a_l.a, kan.t.le* double bag carried across a beast (Ka.); *kan.t.alamu, kan.t.lamu* bullock-load consisting of two bags filled with goods (Te.)(DEDR 1174). *kan.t.ha_l.* a double-sack (G.)

Place where artisans work, lump of silver

The one-horned bull is shown with rings on the neck.

Substantiv: *kod., kod.iyum, kahod.iyum* the place where artisans work; a cow-pen; a cattlepen, a byre; (G.) *kahod.a* fr. Skt. *gos.t.ha* fr. *go* a cow + *stha_* to stand], *kod.a, kahod.a* a cow-pen (G.) *got., got.h* the place where the village cattle rest at mid-day (Santali); *got.hao* to collect cattle together for their mid-day rest; *ad.a* id., a group, a herd; *gor.a* a cow-shed, a cattle-shed; *gai gor.a* a cow-shed (Santali) *got.ho* a cattle-yard, particularly for cow kind; *got.ho* a nest (G.) *go.t.* wall (Ko.); *ko.t.* castle (Ko.)(DEDR 2207). Cf. *kole.l* smithy, temple in Kota village (Ko.); *kolmi* smithy (Go.)(DEDR 2133).

[There seems to be an elongation of the vowel *o* and replacement of *d.* with *l* in Tamil, Telugu and Kannada. Other examples are cited in this section.]

*got.i_* a lump of silver (G.); ***god.*** a boil, a tumour (G.) *kuro* silver (Kol.)(DEDR 1782).

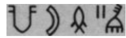
> *got.hiyo* a male companion or friend (G.) *gor.o* to assist, to accompany; *kami gor.o* to assist in work (Santali) *god.i_, gaud.i_* a magician, a juggler, a Bengali gaud. (G.) *gond.a* man of Gond tribe (Kol.); *go_nd.* (Pe.); *go_nd.a* (Kui); *gon.d.a* a man of low tribe (in the Vindhya mountains), a mountaineer (Skt.); a forest, jungle (Pkt.)(DEDR 2077; CDIAL 4276).

Substantive: *gon.d.a* out-lying hamlets of a village, suburbs of a town; out-lying fields of a village; *ga~ gon.d.ape dar.ana* you visit villages and their outlying hamlets; *ga~o gon.d.a* villages and hamlets (Santali)

Glyph: *gon.d.a* a set of four (Santali)

Glyph: *go~r.e~* a pannier, a bag slung across a bullock's back, one on either side (Santali)

*xon.d.xa_, xo~_r.xa_* deep; a pit, abyss (Kur.); *qond.e* deep, low lands (Malt.)(DEDR 2082). Cf. *kol.l.a* a deep place, a depth, the cleft in a rock, a cave (Ka.); *kolame* a very deep pit, abyss, hell (Tu.)(DEDR 2157).
*got.h, got.hd.i_* a secret and confidential talk (G.)

1330 **zebu bull** field symbol [This inscription starts with a sign (right-most sign on the inscription, read from right to left) which is a variant of the 'roof or canopy or chariot-box' pictograph included in Sign 393; on the roof is a 'flag?' (**dhvaja** or a synonym).

Heifer, **vahar.**, 'a helper' of the smithy, **kod.**

vahar., vahir. heifer (P.); vahur.o young bullock (S.)(CDIAL 11459). paghaia d.an:gra a pack bullock (Santali.lex.) bal.ada (G.); baled = herd of bullocks (L.)
Bull **vayilo** (Hem.Des.); bel (G.); waihra_, wair.ka_ = bull calf (P.) va_hr.ka_, vehr.ki_; vehir., vehar., va_har., vohur. = young bull, heifer (L.); vehr.ki_ = heifer (L.); vahar. , vahir.a_, bahir.a_ (P.); bahar. = young bullock (Ku.)

High, crooked horn(s) ara_la = crooked (TS); ara_d.yau divyau (S'Br.); ara_d.ya (KS. v.10.1) ara_lam (Ta.)
ra_d.i = battle (Pkt.)

va_huru_ helper (S.); va_har, vahar crowd of people, help (P.); va_ha_ra help (OG.); vaha_r, vha_r, va_r help (G.)(CDIAL 12217). **va_ura_d.i, va_ura_d.ia_,** 'workman' (Kon.lex.) **kod.ken~** can also be depicted by the **kot.ukku**, 'claws' of a crab. **va_ur kar, va_ur** = work (Kon.lex.)





Uruk IV. Seal and sealing. Cylinder seal with loop at the top shows the king with a netted skirt; the attendant behind the king has branches to supplement the king's offerings to two rows of animals. Ht. 63 mm (seal 46 mm), dia. 37 mm. New Haven, Yale Babylonian Collection (See B. Buchanan, Early Near Eastern Seals in the Yale Babylonian Collection, New Haven, Yale University Press, 1981), no. 134. In the early 3rd millennium BCE, the Sumerians suddenly switched to the Persian Gulf trade for copper. A text from Ur, dated to the reign of Rim-Sin of Larsa (1822-1763 BCE), recorded the receipt of copper in Dilmun (perhaps from Magan), which weighed, according to the standard of Ur, 18333 kilograms. One-third of this copper was earmarked for delivery to Ea-nasir of Ur, a merchant with close copper trade contacts with Dilmun and Magan. The logographs on this cylinder seal are comparable to the logographs on Harappan inscriptions.

va_karan- = warrior (Ta.lex.)
vahatu = a bridal procession (to the husband's house)
nuptial ceremony (RV.AV.AitBr.); pl. the objects constituting a bride's dowry (TBr.)(Skt.lex.)(CDIAL 11455)





va_hini_ = an army, host, body of forces (AV.MBh.); a particular division of an army (consisting of 3 gan.as, i.e. 81 elephants, 81 cars, 243 horses, 405 foot (Skt.lex.)

kun.d.i-a = village headman; kun.d.i_ = waterpot

Spoked wheel glyph on the neck of (1)) a lion ; and (2) a one-horned bull

Ligaturing a glyph depicting a nave of a spoked wheel occurs in a

bronze plaque from Haft Tepe: "…a deity, possibly the god Nergal…standing on the back of a lion with a nude female kneeling in front of him and a praying figure behind him." The person is carrying a bow on his left hand, wearing a horned hat and a saw (ara_?) on his right hand. The lion has a six-spoked wheel inscribed on its shoulder. The pictorial motif of a six-spoked wheel is paralleled on SSVC inscribed objects. On one seal, the spoked-wheel (ara_?) is inscribed on the neck of the one-horned bull. ara_ is a lion in Akkadian. [After EO Negahban, 1990, The Haft Tepe bronze plaque: an example of Middle Elamite art, in: F. Vallat, ed., 1990, *Melanges Jean Perrot*, Paris, Editions Recherche sur les Civilisations, 137-42; EO Negahban, 1991, *Excavations at Haft Tepe*, Iran, Philadelphia: University Museum Monograph 70: III.48; D.T. Potts, 1999, *The Archaeology of Elam*, Cambridge University Press, p. 200] The texts from Haft Tepe temple complex (Table 7.2 in DT Potts, 1999) refer to accounts of silver paid for bracelets, of silver and gold, commodities such as flour, linen, chariot parts, lapis lazuli, bronze, armour plates, belts, weights of talents and minas; reference to guards and funerary offerings.

A similar ligature occurs on a Mohenjodaro seal, m0712:



m0712 1091 Note Sign391 ligatured on the animal's neck.

era, eraka = nave of wheel (Ka.); rebus: **era, eraka '**copper' (Ka.)

gun.d.ige = thorax, chest (Ka.lex.)

va_han.a_ = neck, throat (Pkt. Lex.) vahas = the shoulder of a draught animal (S'Br.)(Skt.lex.) vaha = shoulder of an ox (AV.Pkt.); ba (A.)(CDIAL 11459)

va_kara = warrior; va_hin.a_h = commander of an army; va_har. = young bull

va_karan- = warrior; learned person; va_kan- = beautiful person; watchman; porter (Kathirvelpil.l.ai Tamil lexicon) va_haka = a driver or attendant of cattle (EI3, IEG); va_hali = official designation explained as 'the lord of horses' (BL, IEG) va_hini_pati = leader of forces; a general (EI 28; IA 10, IEG) va_hini = a self-sufficient division or unit of an army (Te.lex.) va_hin.i_ = army, a force; a troop; a number, multitude; va_hin.a_ha [va_hin.i_ + n.a_h or na_tha], va_hin.i_s'a = sena_pati, commander of a force or commander of an army (Pt. Hargovind Das T. Seth, 1928, *Pa_ia-sadda-mahan.n.avo, a comprehensive Prakrit-Hindi dictionary*, Delhi, Motilal Banarsidass – Pkt.lex.) vaha_n.avat.i_ = a sailor; a merchant who carries his merchandise in ships to a foreign country; a great merchant; vaha_n.avat.um = voyaging in ships; a sea-voyage (G.lex.) va_hana = an army (S'is. Xix.33)(Skt.lex.)

garn.d.a_l.u = stalwart man, giant (Tu.); kan.t.an- = warrior (Ta.); kin.t.an = big; a stout, bulky fellow (Ma.); gan.d.a = a strong, manly male person (Ka.); gand.u~d.u, gan.d.a~d.u = a brave, strong man (Te.); gan.di_ra hero (Skt.)(DEDR 1173).

gan.d.a_d.u = to copulate (Te.)(DEDR 1173). [Note glyphs showing copulation].

kandala = a new shoot or sprig (Ka.lex.) **kandal.amu** = a germ or shoot, a sprout (Te.lex.) [Note the sprig on the headdress of standing persons]. **kan.d.ike** = a stalk or stem (Ka.lex.)
kandala = skull (Ka.lex.)

kan.t.ha_l.a, **kantha_l.a** = a double sack with which asses, mules etc. are laden (G.lex.) **kandal.amu** = a pack-saddle; kandarikamu = a pad put under the pack-saddle; kantha = a patch-work quilt; a rag (Te.lex.) **kan.t.a_l.am** travelling sack placed on a bullock, pack-saddle (Ta.); kan.t.ale, kan.t.a_l.a, kan.t.a_l.e, kan.t.l.e double bag carried across a beast (Ka.); kan.t.a_lamu, kan.t.lamu bullock-load consisting of two bags filled with goods (Te.)(DEDR 1174). kan.t.ha_l.i_ a bag having opening in the middle (Mara_t.hi_). kan.t.a_l.averutu = pack-bullock (TED. Ta.lex.) **kan.t.ale, kan.t.a_l.a, kan.t.le** = a double bag carried across a beast (Ka.); kan.t.ha_l.a (M.); kan.t.a_la, kan.t.la (Te.); kan.t.a_l.am (Ta.)(Ka.lex.) **kantal.am** coat of armour, armour for the body (TED. Ta.lex.). kattal.amu = armour for th ebody, coat of mail (Te.lex.)

kan.t.a_l.am, kantal.am = battle, war (TED. Ta.lex.) cf. **kantar..i** = theme of celebrating the destruction of Ba_n.a's fortress by Kr.s.n.a (TED. Ta.lex.) **ka_du** to kill, murder; murder (Ta.)(DEDR 1447). **kandala** = war, battle (Ka.lex.) **ka_da_d.uni** = to fight; ka_d.a_t.a = a fight, war, battle (Tu.lex.) **kadanamu =** battle, combat, an encounter; slaughter (Te.lex.) ka_du = to war, to fight; to fight, to contend with (Ka.Ta.Tu.); ka_duha = fighting (Ka.); ka_disu = to cause to fight (Ka.)

kandali = a species of deer (Ka.lex.) **kandal.i, kadal.i** = a small deer (Te.lex.) [Note the dotted circle, **kandi**, orthographically emphasized on the eye of the deer].

kander-a = the eyelid (Te.lex.)

kan.d.ali = a kind of billhook or cleaver (Ka.M.)(Ka.lex.)
kan.dla gold or silver wire; **kan.dle kash** one who draws silver thread (P.lex.)

kot.t.u spade (Ta.)

> [kot.t.u-k-kan-n-a_r = coppersmiths using drill; braziers who work by beating plates into shape, not by casting; kot.t.u-ccempu = copper pot mad eby beating plates into shape; kot.t.u = perforate (Ta.)] kot.t.uva_n- = brazier who works by beating plates into shape (Ta.)
>
> kor.a_ = to dig, bore through, pierce (B.); ko_t.ayate_ = breaks (Dha_tup.); kor.na_, korna_ = to dig up, scrape out, carve (H.)

a_ca_ri **kot.t.ya** = forge, kamma_rasa_le (Tu.) kod. = place where artisans work (G.)

kot.iyum [*kot.*, *kot.i_* neck] a wooden circle put round the neck of an animal (G.)
ko_d.iya, *ko_d.e* young bull; adj. male (e.g., *ko_d.e du_d.a* bull calf), young, youthful; *ko_d.eka~_d.u* a young man (Te.); *ko_d.e_* bull (Kol.); khor.e male calf (Nk.); *ko_d.i* cow; *ko_r.e* young bullock (Kond.a); *ko_d.i* cow (Pe.); *ku_d.i* id. (Mand.); *ko_d.i* id., ox (Kui); *ko_di* cow (Kuwi); *kajja ko_d.i* bull; *ko_d.i* cow (Kuwi)(DEDR 2199). *kor.a* a boy, a young man (Santali) *go_nde* bull, ox (Ka.); *go_da* ox (Te.); *konda_* bull (Kol.); *ko_nda* bullock (Kol.Nk.); bison (Pa.); *ko_nde* cow (Ga.); *ko_nde_* bullock (Ga.); *ko_nda_*, *ko_nda* bullock, ox (Go.)(DEDR 2216).

kot.i banner, flag (Ta.); top, extremity, flag, banner, sprout (Ma.); *kod.i* point, end, sprout, flag (Tu.); tip (Te.)(DEDR 2049). *kot.i-dhvaj* a man on the top of whose house there is a banner to show that he possesses a crore of rupees, a millionaire (G.)
karol.iyo, *karoliyo* a seller of earthen pots (G.); skt. kaula_laka
*kot.i_* the highest point (G.)
kot.ho the upper part of an angarkha (G.)
kot.i creeper (Ta.Ma.)(DEDR 2050).
kho~edak, *kho~edok* a pit, a mine (Santali)

List of possessions: Copper ingot merchant, metal furnace



m0296 Two heads of one-horned bulls with neck-rings, joined end to end (to a standard device with two rings coming out of the top part?), under a stylized tree with **nine leaves**. 1387

kamat.ha 'ficus religiosa'; rebus: **kampat.amu** 'furnace'.

Substantive: *lo* 'iron' (Assamese, Bengali); *loa* 'iron' (Gypsy)

Glyphs: *lo* 'nine' (Santali, Desi); *lo* 'a species of fig tree, *ficus glomerata'* (Santali) [That is, glyphs showing nine 'leaves'.] If tied to a bull or gaur, the phrase can be: *lo* + *sal* 'iron workshop'.

Substantive: *aduru* 'native metal'.

> *ad.rna_* to twist back one's limbs or bend the body inward (as under threat of a blow)(Kur.); *ad.re* to strut; *ad.ro* a swaggerer (Malt.)(DEDR 108). [cf. the glyphs of antelope and tiger with their heads turned backwards.]



ad.aru twig; ad.iri small and thin branch of a tree*; ad.ari* small branches (Ka.); *ad.aru* twig (Tu.)(DEDR 67).

Goblet, black on red slip, Nausharo ID, Kachi Plain, Baluchistan (After Samzun, A., 1992, Observations on the characteristics of the pre-Harappan remains, pottery, and artifacts at Naudsharo, Pakistan (2700-2500 BCE) in: C. Jarrige, ed., *South Asian Archaeology 1989,* 245-252, Madison, Wisc.: 250, fig. 29.4, no.2, Mission Archeologique de Indus. Goblet. Mundigak IV, 1, eastern Afthanistan (After Casal, J.M., 1961, *Fouilles de Mundigak, I-II, Memoires de la delegation archeologique francaise en Afghanistan 17*, Paris. II: fig. 64, no.171, Delegation Archeologique Francaise en Afghanistan.

A twig of three ficus leaves are shown on the Nausharo goblets: **t.ebra** = three; rebus: **tambra** = copper; ficus religiosa = **loa**; rebus: iron **'loha';** twig = **aduru** 'metal'

khu~t.a_, khu~t.i_ wooden post, stake, pin, wedge; kut.hara, kut.a_ram = post around which the string of a churning stick winds; churning pot

There is an intriguing lexeme nyoh in Khotanese which connotes 'nine'. [Whence *y*? *–h* from Persian? Belvalkar Vol. 94]. Is it possible that n- in nyoh was derived from loh? The transformation lohe > nohe is attested in Santali. lohe, nohe = v.a.disregard, disown, disobey (Santali); nohe = is not (B.)(Santali.lex.) **lo** = nine (now often heard)(Santali); **lo** (desi); noe (B.)(Santali.lex.Bodding) nava = nine (RV.Pali); n.ava (Pkt.); nau (D.); no, nu_ (Ash.); nu~_ (Wg.); nu_ (Pr.); no~_ (Dm.); na_h (Tir.); nawa, na_u, na_ (Pas'.); nu_ (Shum.); nu~_ (Gaw.); no_ (Kal.); nyoh (Kho.); nah, num (Bshk.); nom (Tor.); nau_ (Kand.); nau_ (Mai.); no_u (Sv.); nau, nu_, nu~_ (Phal.); nau~, na_u_ (Sh.); nav, nau, nam, na_u (K.); na_va (S.); no~_, nau_, nao~ (L.); nau~, nau (P.); nao (WPah.); nau, no (Ku.); nau (N.);; na (A.B.Or.); naa (Or.); nau (Bi.Mth.Aw.H.); nam (H.); nova (Omarw.); nav (G.); nav, nau_ (M.); nav (Kon.); nava (Osi.); namaya (Si.); nuva (Md.)(CDIAL 6984). Navaka consisting of 9 (RV Pra_t.); collection of 9 (R.); n.avaga (Pkt.); nomu (K.); nawwa_, namma_ (H.); navvo the 9 in cards (G.)(CDIAL 6985).

Since the rebus uses Santali lexeme it is apparent that the numeric counting (often indicated by short linear strokes to connote the count of countable objects) uses Munda substrate. The Santali numerals are:

mit eka one; bar barea don two; pea pe pene three; pon, ponea, car four; **mo~r.e~** five; **turui** six; **eae,** sat seven; iral eight; are, **lo** nine; gel ten.

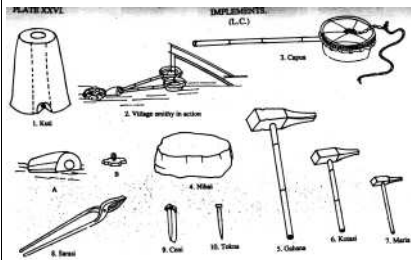
lo = nine (Santali.lex.)

loe (longe) the penis; loe!-go to have a penis; cakurako kako loeakana, hermaphrodites have no penis (Mundari.lex.)

loa = a species of fig tree, *ficus glomerata*, Roxb. (Santali.lex.) loa = the fig tree, ficus glomerata and its fruit. Loa bele jom dela = come along to eat figs; loa talsa jomteko bancaoena they were saved (kept alive) by eating fig-flour. The unripe figs are steamed and when dried husked in a mortar; a small vessel is heated, whereupon some oil is poured in; when this is boiling the figs are thrown in, salt and spices are added; when ready this is eaten as curry. The juice of the tree is used as a remedy against boils, also as a kind of lime. Bahu loa = a kind of fig tree, the figs of which expand and break like a flower. ? ficus tiela, Roxb. (Santali.lex. PO Bodding) **loa** = the fruit of ficus glomerata, ficus lanceolata or ficus carica; loa-daru (Sad. Dumair) ficus glomerata (Mundari.lex.)

loha = iron utensils and implements (Santali.lex.) loha = red, copper-coloured (S'rS.); made of copper (S'Br.); copper (VS); iron (MBh.); lo_ha metal, esp. copper or bronze (Pali); iron (Pkt.); liha, lihi, elhas, loa (Gypsy); loa steel (Wg.); loh copper (Kho.); lohu iron (S.); loha_, loa_ (L.); loha_ (P.K.); lo~u, lo_, lo_h, luha_, loha_ (WPah.); luwa_ (Ku.); lohu, loha_ (N.); lo (A.B.); no (B.); loha_, luha_ (Or.); loh (Mth.); loha_ (Bhoj.H.); lo_h (Aw.); loh (H.G.M.); loho, lo_ metal, ore, iron (Si.); ratu-lo_ copper (Md.)(CDIAL 11158). Lo_haka_ra iron-worker (Skt.); coppersmith, ironsmith (Pali); loha_ra blacksmith (Pkt.); luha_ru (S.); loha_r, loha_ri_, luha_r (L.); luha_r (WPah.); loha_r (N.B.Bi.Bhoj.Aw.H.); lova_r (G.); lo_varu coppersmith (Si.)(CDIAL 11159). lohsa_ri_ smithy (Bi.)(CDIAL 11162). Loh large baking iron (P.); luhiya_ iron pan (A.); lohiya_ iron or brass shallow pan with handle (Bi.); frying pan (G.)(CDIAL 11179). lauha made of copper or iron (Gr.S'r.); red (MBh.); iron, metal (Skt.); lo_ha made of iron (Pkt.); loha_ iron-coloured, reddish (L.); reddish-brown (of cattle)(P.)(CDIAL 11172a). Note the following riddle, the answer to which is **loa**: gar.a japare nao~a cat.uko hakatada, near the stream they have hung up new pitchers (Mundari.lex.) John Hoffmann and Arthur Van Emelen, *Encyclopaedia Mundarica*, Vol. 16, Pl. XVI, New Delhi, Gian Publishing House, 1990.

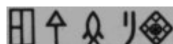
lohar kamar = a blacksmith, worker in iron, superior to the ordinary kamar, a Hindu low caste (Santali.lex.)



lo_hala made of iron (Skt.); lohar, lohariyo self-willed and unyielding man (G.)(CDIAL 11161). Tool-bag: lokhar bag in which a barber keeps his tools (N.); iron tools, pots and pans (H.); lokhar. iron tools (Ku.); lokhan.d. iron tools, pots and pans (H.); lokha~d. tools, iron, ironware (G.); iron (M.)(CDIAL 11171). lod.hu~ pl. carpenter's tools (G.)(CDIAL 11173). karuvi-p-pai instrument-case; barber's bag (Ta.lex.) cf. karuvu-kalam treasury, treasure-house (Ta.lex.) Cobbler's iron pounder: lohaga~ga_, lahau~ga_ cobbler's iron pounder (Bi.); leha~ga_ (Mth.); luha~_gi_ staff set with iron rings (P.); loha~_gi_ (H.M.); lavha~_gi_ (M.); laha~_gi_, loha~gi_ (M.)(CDIAL 11174). Image: frying pan: lohra_, lohri_ small iron pan (Bi.)(CDIAL 11160). lo_hi_ any object made of iron (Skt.); pot (Skt.); iron pot (Pkt.); lo_hika_ large shallow wooden bowl bound with iron (Skt.); lauha_ iron pot (Skt.); loh large baking iron (P.); luhiya_ iron pan (A.); lohiya_ iron or brass shallow pan with handles (Bi.); lohiyu~ frying pan (G.)(CDIAL 11170). lauhabha_n.d.a iron pot, iron mortar (Skt.); lo_habhan.d.a copper or brass ware (Pali); luha~_d.ir.i_ iron pot (S.); luha~_d.a_ (L.); frying pan (P.); lohn.d.a_, lo~_hd.a_ (P.); luhu~r.e iron cooking pot (N.); lohora_ iron pan (A.); loha~r.a_ iron vessel for drawing water for irrigation (Bi.); lohan.d.a_, luhan.d.a_ iron pot (H.); lod.hu~ iron, razor (G.)[cf. xolla_ razor (Kur.); qole id. (Malt.); hola'd razor (Santali)(DEDR 2141)]; lod.hi_ iron pan (G.)(CDIAL 11173).

> **med.hi**, 'pillar' is also shown, apart from nine ficus leaves: lohar kamar: **lo**, 'nine'; **kamat.ha**, 'ficus'.

me_dha = a sacrifice; medho_ho_ta = a sacrificial priest; name of a brahmara_ks.asa; me_dhya fit for sacrifice; me_dha_vi, me_dha_vanta learned man; me_de, me_dha_ understanding, wisdom (Ka.lex.) [cf. the name Ahura Mazda in Avestan tradition].

1387 The fifth sign (left-most) on Text 1387: **kole.l** = smithy, temple in Kota village (Ko.)(DEDR 2133). This sign also appears on a unique seal with three ligatured tigers (**kol**). The first sign is a ligature of four-corners and a spoked-wheel:

The emphatic rings on the neck of the two heifers: **kod.iyum**, reinforces the **kod.**, 'horn'; rebus: kod., 'artisan's workshop'.

Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)

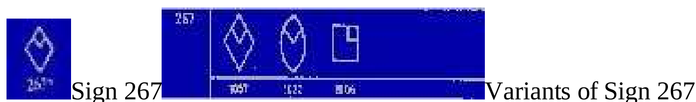
Second sign from the right on the text is a composite with a slanted line and a short linear stroke:

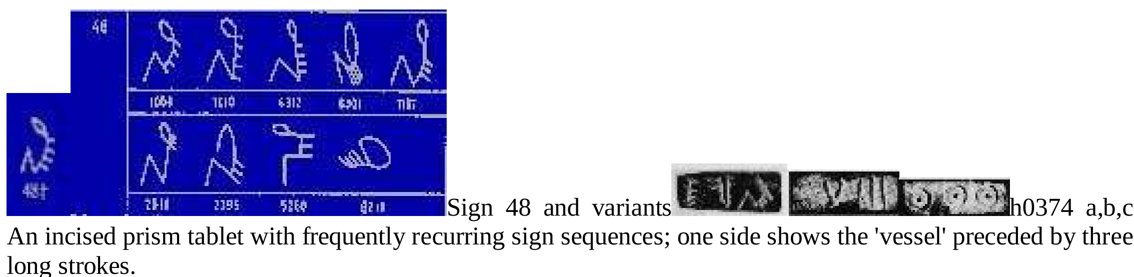
Substantive: *kan.t.am* iron style for writing on palmyra leaves (Ta.); *gan.t.amu* id. (Te.)(DEDR 1170) [The owner of the seal had the tool to engrave such an exquisite seal!]
gan.d.e 'to place at a right angle to something else, cross, transverse'; *gan.d. gan.d.* 'across, at right angles, transversely' (Santali)

The last sign is a 'wheel' glyph ligatured with (inlaid within) four cornered rombus:

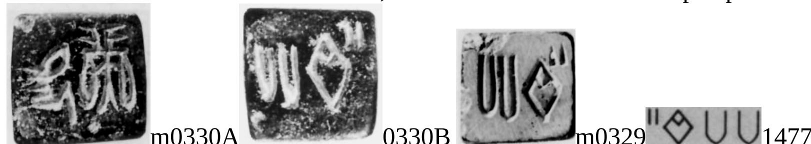
kanda kondo 'with lumps'; rebus: *kan.d.* 'furnace'
Glyph: square '*khon.d.*' (Santali)

Glyph: *kanac konoc*, *kana kona*, *kana kuni* 'the corners, in the corners' (Santali) Substantive: *kan~cu* 'bronze' (Te.)
Glyph: *kanas* 'ambush, direction, aside; *kanasre okoeye tabena*? 'Who will lie in ambush? (the person who keeps out of sight near the net into which hares are driven is said to be '*kanasre*'); *khanca* 'a cage, a large basket' (Santali)
Glyph: *kamsa kamsi*, *kamsa kadak* 'to jump,to frisk, to gallop'; *kamsao* 'to cause a horse to gallop' (Santali) [cf. the imagery of a jumping tiger. Hence, *kamsa kol* lit. 'jumping tiger'; rebus: copper/bronze furnace] [Note the orthographic style showing the tiger jumping] Hence, the tiger shown may be a kamsi-kula = rebus, bronze kol or bronze furnace. kso = bell-metal tray for food (OMarw.); kenzu = clay or copper pot (K.); ka~_hi = bell-metal dish (A.); kam.sa = bell-metal (Skt.); metal cup (AV); kam.sa = bronze dish (Pali); kan~jho = bell-metal (S.); ka_~h gong (A.); ka~sa_ big pot of bell-metal (Or.)(CDIAL 2576).


Sign 267 Variants of Sign 267


Sign 48 and variants h0374 a,b,c
An incised prism tablet with frequently recurring sign sequences; one side shows the 'vessel' preceded by three long strokes.

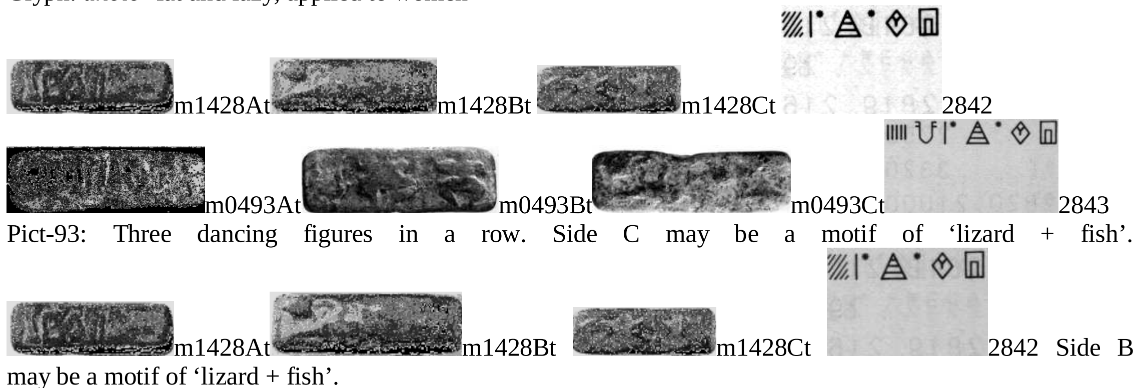

h0764 a,b Moulded tablet. The 'U-shaped pot' is repeated thrice on one side.


m0330A 0330B m0329 1477

me_n.te = a couple (Tu.lex.) mel.ai = couple (Kon.lex.)

m330A, reading: **kamar, kan.d., kamat.ha_yo** = smith, furnace, carpenter; m330B, m329: **barea kammat.a, kanac med.** = two portable furnaces, bronze copper (med. 'copper') (glyphs: two **U**'s, corner, splinter) [The splinter glyph can also be read as: **s'al**, splinter, i.e. m329 can be read alternatively as: **kanac s'al** (bronze workshop) **barea kammat.a** = two portable furnaces].

Glyph: *dholo* 'fat and lazy, applied to women'


m1428At m1428Bt m1428Ct 2842

m0493At m0493Bt m0493Ct 2843

Pict-93: Three dancing figures in a row. Side C may be a motif of 'lizard + fish'.

m1428At m1428Bt m1428Ct 2842 Side B may be a motif of 'lizard + fish'.

khod = a step in a dance (Santali.lex.) [Or, khel = to play, dance (Gy.)(CDIAL 3918) and khe_r. shield (Phal.)].

kod.a, kor.a = in arithmetic one; 4 kor.a or kod.a = 1 gan.d.a = 4 (Santali.lex.)

kod. 'artisan's workshop' (G.)

kud.rau, kudrau = to strike with the heel of the fist, not with the knuckles (Santali.lex.) **kudra kudri** = to fight by striking each other with the heel of the fist (Santali.lex.)

kudrau = to propitiate, to appease; ma bon:geko kudraukotam = propitiate the objects you worship (Santali.lex.) kod.hok = bent, stooping (Santali.lex.) kud.bur = to hand or bow the head (Santali.lex.)

kudur. kudur. = sound of footsteps (Santali.lex.) [Note three persons in dancing steps].

kudra = one of the Santal godlets; **kudri** = a female godlet of the Santals; kudra than = the place where Pargana Bonga is worshipped (Santali)

dun:ger. 'a dance danced at the place where the night is spent when out at one of the annual hunts'; *don:ger.* 'a dance by men only on the evening of the first day of an annual hunt' (Santali)
belcad.e a devil-dancer (Tu.)

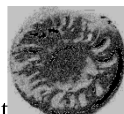
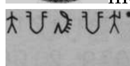
The glyphs showing three fat, dancing persons may connote three *dolan* 'brick-houses.' (with) *dokhra* 'smithy'

Glyph; *ghera* 'a ring, circle, enclosure'; *gerwel* 'ring on underside of neck, said of birds such as the Ring dove, the quail etc.; *gun.d.ri doko gerwelana* 'quails have a ring round the neck' (Santali)

Glyph: *baggare* thorax (Kod.); *baggari* id. (Ka.)(DEDR 3815).
Substantive: *bakher* 'homestead'; cf. *pangal di_na* the plains country (Kui); *pangenga* plains people; *panga ra_ji* the plains (Kuwi)(DEDR 3819).

Substantive: *ke.r, ke.ry* street, exogamous division in Kota village (Ko.); *ce_ri* town, village, hamlet; street, quarters of the Pariahs (Ta.); assemblage, village street (Ma.); *ke_ri* street (Ka.); *ke.ry* street of Badaga village (To.); *ge_ri* street, passage (Te.); *se_ri* street, quarter; *s'e_ri* lane, alley (M.)(DEDR 2007). [Note: *kentum* phase of the languages]
Glyph: *ko.t.* castle, palatial mansion (Ko.); *kwa.t.* bungalow (To.); *kot.e* fort, rampart (Ka.); *ko.te* palace (Kod.); *ko_t.a* fort (Te.); *kot.t.a, kot.a* fort, stronghold (Skt.)(DEDR 2207).
Substantive: **kod., kod.iyum** place where artisans work (G.)

Glyph: **kod.a_m** shells; kod.i_ a small cowry; kod.um a sea-shell; kod.o a large cowry (G.)
Glyph: *ko_t.u* horn (Ta.); *ko.r.* horns (Ko.); *kwi.t.* horn (To.); *ko_d.u* horn (Ka.Tu.Pa.); *ko_r* horn of cattle (Go.)(DEDR 2200).
Thus, the orthography of the one-horned bull is made up of:
Glyphs: Pannier (*kan.t.ha_l.am*), rings on neck (*gera*), one horn (*ko_t.u*); heifer (*ver.ha*)
Substantives: *garn.d.a_lu* 'warrior', *ke.ry* 'street', *kot.e* 'rampart, fort', *ve_la* 'worker' [i.e. fort-street warrior-worker].
Glyph: *ve_l* petty ruler, chief, hero (Ta.); *be_las* king (Kur.)(DEDR 5545).
Glyph: *bela_* [Dh. Des. *beli_* = Skt. *stambha* a pillar, a support
Glyph: *bela*, the sun, time

m0428Atm0428Bt
1607 Pict- 132: Radiating solar symbol.

On this tablet, the rebus interpretation of the radiating solar symbol can be that it relates to arka (akka-) or copper metal. The inscription on the obverse can thus be interpreted as a list of tools made of copper (metal). The two 'man' signs on the inscription may relate to the representation of a (copper-) metal-smith.

5561.Sun: a_r..va_n- the sun (Ta.)(DEDR 396). aru sun (Skt.); yor (Kho.)(CDIAL 612). ravi sun (Mn.Pali.Pkt.); rivi (Si.)(CDIAL 10646). ilaku (ilaki-) to shine, glisten, glitter (Ta.); el sun, light, splendour (Ta.); lustre, splendour, light (Ma.); ilakuka to shine, twinkle (Ma.); ilankuka to shine (Ma.)(DEDR 829). arka flash, ray, sun (RV.); a_k sun (Mth.); akka sun (Pali.Pkt.); aka lightning (Si.); vid-aki lightning flash (Si.Inscr.)(CDIAL 624). aks.an.a_ lightning (Skt.); akkhan.a_ id. (Pali); akan.a, akun.a id., thunder (Si.)(CDIAL 27). pakal sun, the morning sun, day, daytime (Ta.)(DEDR 3805). an:ki sun (Tirukka_l.at. Pu. 30,14); fire; agni (Kantapu. Pa_yira. 53); an:kicuma_li a deity representing the sun, one of the tuva_taca_tittar (Ta.lex.)axrna_ to warm oneself (by the fire, in the sun)(Kur.); awge to expose to the heat of the sun or fire; awgre to bask in the sun, warm oneself to a fire (Malt.)(DEDR 18).

kona_rka is a compound: kona, 'corner'; arka, 'sun'. arka also connotes fire in Skt.

Metal: akka, aka (Tadbhava of arka) metal; akka metal (Te.) **arka** = copper (Skt.) cf. arh, argha a collection of twenty pearls (having the weight of a Dharan.a) VarBr.S.; worth , value , price , Mn. Ya_jn~.; arghya = valuable (Skt.)

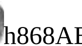
akka-ca_lai metal works (Cilap. 16,126, Urai); mint; akkaca_laiyar goldsmiths, jewellers (Ta.lex.) 5952a.Workshop of a goldsmith: aka-sa_la, aga-sa_la, aka-sa_liga, aka-sa_le a gold or silversmith; aka-sa_like the business of a gold or silver smith; akka-sa_le, aka-sa_le the workshop of a goldsmith; a goldsmith; akka-sa_liti a woman of the goldsmith caste (Ka.); akka-c-ca_lai a shop where metals are worked (Ta.)(Ka.lex.)

arka connotes the sun and also saturn in Skt. This an equivalence is noticed in Greek manuscripts: "...as Boll discovered, this practice of "correcting" the name of Saturn, from Helios to Kronos, was quite common among later copyists. Based on his reading of the most original Greek manuscripts, Boll drew a startling conclusion: the sun god Helios and the planet-god Saturn were "one and the same god." Now if this only seems to accentuate the puzzle, there is more. Hindu astronomical lore deemed the planet Saturn as Arka, the star "of the sun." And certain wise men of India often asserted that the "true sun" Brahma, the central light of heaven, was none other than Saturn. This in turn, reminds us of a rarely-noted teaching of the alchemists, preservers of so many ancient mysteries. The planet Saturn, they recalled, was not just a planet; it was "the best sun"!" http://www.kronia.com/thoth/thoth10.txt

m0317silver2016

Silver m1199Acolour 2520

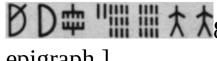
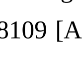
Mohenjo-daro. Copper seal. National Museum, New Delhi. [Source: Page 18, Fig. 8A in: Deo Prakash Sharma, 2000, *Harappan seals, sealings and copper tablets*, Delhi, National Museum].

 h868ABt h869ABth859At h859Bt

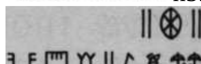
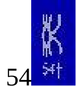


[One of the more frequently occurring sequence of epigraphs; tablets in bas relief.]

Kalibangan069A

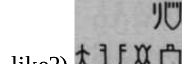
8109 [Another frequent tablet epigraph.]

h598Ah598D

5073 [The ligature in-fixed on the last sign of the second line may be Sign 54]



h1018copperobject Head of one-horned bull ligatured with a four-pointed star-fish (Gangetic octopus?)

m0297a Head of a one-horned bull attached to an undentified five-point symbol (octopus-like?) 2641

ver.ha_ octopus, said to be found in the Indus (Jat.ki lexicon of A. Jukes, 1900)

This may be interpreted as a determinative of the grapheme: 'young bull'. [Could be a phonetic determinant for the substantive delineated by the one-horned heifer-bull, **va_hur.o**]. The star-fish glyph is viewed as a phonetic determinant of the one-horned animal which is a young male bull calf. The imagery of 'surrounding' is denoted by val.ai to surround (Ta.); val.aiyam ring (Ta.); val.a bracelet (Ta.); bal.e bracelet, hoop (Tu.); val to turn, turn round; valaya bracelet, ring, girdle, circle (Skt.)(CDIAL 11405, 11407; DEDR 5313). cf. val. sharpness, pointedness (Ta.); val.i (knife) to have cutting edge (Pa.); var.s to be sharp (Kond.a)(DEDR 5306).

[A phonetic determinant for the substantive delineated by the one-horned heifer-bull, **vehar.**] va_har., vohur., **vehar.** young bull (L.); vehir. heifer; va_hr.ka_, vehr.ki_ (L.); **vahar.**, vahir.a_, bahir.a_; vahir., bahir., vahir.i_, bahir.i_ (P.); bahar. young bullock (Ku.); bahar (N.); vahas shoulder of an ox (S;Br.); vaha shoulder of an ox (AV); vahata, vahatu = ox (Skt.); vaha shoulder of an ox (Pkt.); ba (A.); vahad.a calf to be trained (Pkt.); vahur.o young bullock (S.); vahur.i_ heifer (S.)(CDIAL 11459). Pack-bullock: pahur. animal for sacrifice (Santali.lex.) paghaia pack-bullock (Santali.lex.) phe~t.ar. a heifer (Santali. lex.)

> **ka_ma_rkod.ken~** = forge, i.e. artisan's workshop (Kon.); **kod.** = artisan's workshop (which is depicted by a curved horn); hence, **va_ura_d.i, va_ura_d.ia_,** 'workman' (Kon.lex.) **kod.ken~** can also be depicted by the **kot.ukku**, 'claws' of a crab. **va_ur kar, va_ur** = work (Kon.lex.)

A phonetic determinant (of the one curved horn, kod.u) very vividly shown on the shoulder of the one-horned bull is a pannier. **go~r.e~** = a pannier, a bag slung across a bullock's back, one on either side (Santali.lex.)

> **gon.d.a, kon.d.a** = fire-pit (Kon.lex.) [Associated with **vahur.,** worker of the artisan's workshop depicted by a one-horned bull: **vahur.,** 'heifer'; **kod.** 'one horn'. The decoding of the one-horned bull and the orthographic ligatures is thus re-inforced: the owner of the seal is a worker of a fire-pit workshop.

got.i_ ‘lump of silver’ (G.)

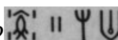
god.et = one of the officials of a Santali village; serma god.et = heavenly messenger, angel (Santali.lex.) **ko_d.eka_d.u =** a young man (Te.lex.) **kot.al** = watchman (Santali.lex.) kot.t.ika_d.u, ko_t.ika_d.u, kot.ika_d.u = watchman (Te.lex.)

va_holo = adze; vahola_ = mattock; bahola_ = a kind of adze (P.lex.) Mattock, adze:bahola_ adze (P.); basulo (N.Ku.< P.); basu_la_ (Bi.); basula_ (Mth.); basola_, basu~_la_ (H.); va_hola mattock (S.); vahola_ mattock (L.)(CDIAL 11588). 7477a.Spade, mattock, hoe: phaur.o a kind of mattock, spade (Ku.); pharuwa_ mattock, hoe (N.); phya_uri long-handled implement for levelling rice-field (N.); pha_ura_, pho~r. spade, hoe (B.); pha_ur.a_ digging hoe (Or.); phahuri, pharuhi_, phar.ua_, phar.uhi_ scraper for making banks of irrigation beds (Bi.); pha_wr.a_, phaur.a_, pharuwa_ mattock, hoe; pharu_ha_ a kind of rake or hoe (H.); pha_vd.a_ large hoe (esp. a wooden one)(M.); pha_vd.i_ wooden hoe-shaped instrument for skimming molasses, large hoe; pha_vd.e~ hoe or scraper (M.)(CDIAL 13839).

Fish vaguli (Ta.), va_gu (Ka.), baggad.e (Ka.); va_gat.e_ (M.)

vanju = seer fish (Te.) **va_holo** (S.), bahola_, basula_ (P.), basilo (N.), behalo, behil (WPah.), basulo (Ku.)
Stream vaho_la (Pkt.); va_hur.u = backwater (S.)

va_gal.amu, va_gal.l.amu = circular space round a threshing floor (Te.lex.)

m02322234 'Unicorn' with two horns! "Bull with two long horns (otherwise resembling the 'unicorn')", generally facing the standard. That it is the typical ‘one-horned bull’ is surmised from two ligatures: the pannier on the shoulder and the ring on the neck.

The ‘one-horned’ bull with two horns and two heads ligatured to the body of a bull!

Squirrel and glyphs on weapons

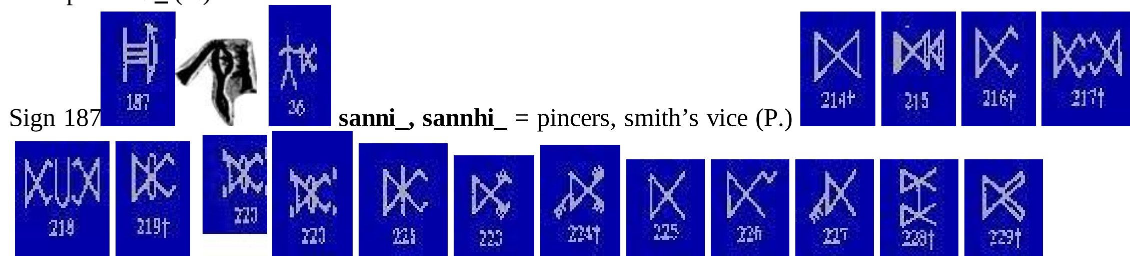
h419 5092

[ The first sign may be a squirrel as in Nindowaridamb 01 Seal].

Squirrel

A harp **san.i_** (P.)

Sign 187 **sanni_, sannhi_** = pincers, smith's vice (P.)



tsa_ni, tsa_nye = squirrel (Kon.lex.) [Alternatives: tor. = squirrel; sega = squirrel; sisiar.in: = squirrel (Santali.lex.) Rebus: tor.a = a bag for holding money carried bound round the waist underneath the clothing, a long narrow purse; sisiar.i = thin, slim, as a stick (Santali)] **canil, can.il** (Tu.), an.n.al (Ma.), an.n.a_n (Ma.), an.il, an.ilam (Ta.)[Tol. po. 561] sanja_b = the grey squirrel (U.Pers.)

sanil (Tu.); sa_n.a._, s'a_n.a (M.), saniyamu (Te.) = a bayonet or short dagger; [san.gi_n, s'ani_n = bayonet; hard, solid (P.); san:gin = bayonet (Santali)] san:gin = steel dagger at the end of a gun (G.), can-iyan- = bayonet, kuttuva_l. (Ta.)

san.g = a stone; aki_k or carnelian stone (P.) a chisel for cutting metals

s'a_ne, sa_n.e, sa_n.ekallu = a grind-stone; a whitstone; sa_n.e pattuni = to grind, to sharpen (Tu.lex.) sa_na = a grindstone, a whetsone, a hone; a kind of fine sandstone on which sandal paste is prepared; sa_nakatti = a kind of sword; sa_napat.t.u = to grind, as a knife, etc. to cut and polish as a precious stone (Te.lex.)



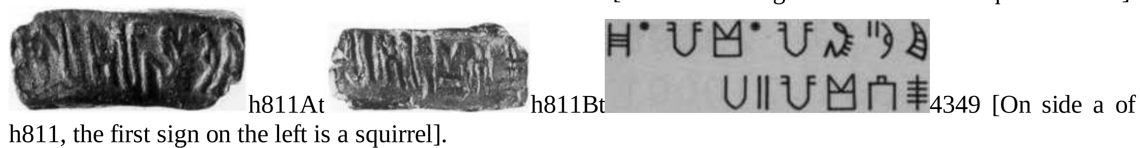
sa_na = a demon shrine (Tu.); stha_na (Skt.)(Tu.lex.)

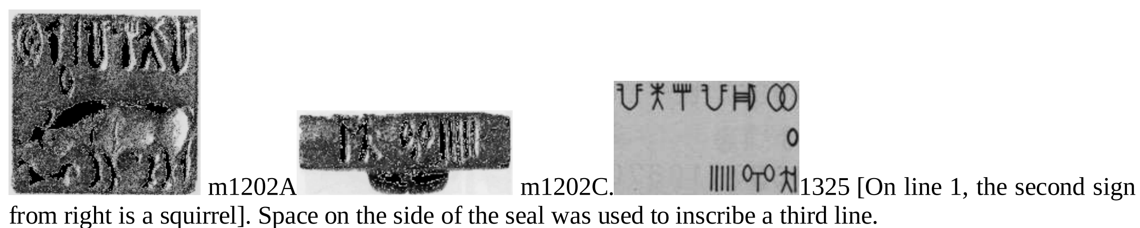
san:gil = to look up, to raise or throw back the head (Santali.lex.)

Nindowari-damb01 Seal from Nindowaridamb. The sign that appears close to the horn of the bull is a squirrel. (cf. Asko Parpola, 1994, p. 103).

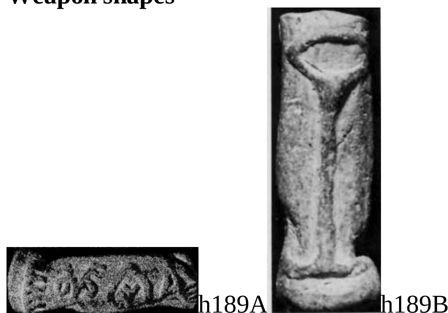
Squirrel sign

h771At h771Bt 4678 [The second sign on line 1 is a squirrel].

h811At h811Bt 4349 [On side a of h811, the first sign on the left is a squirrel].

m1202A m1202C. 1325 [On line 1, the second sign from right is a squirrel]. Space on the side of the seal was used to inscribe a third line.

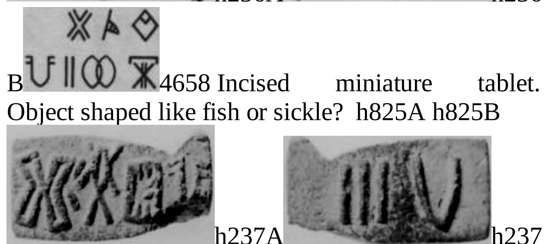
Weapon shapes



h189A h189B

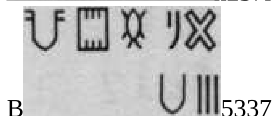


4341 Pict-126: Anchor?

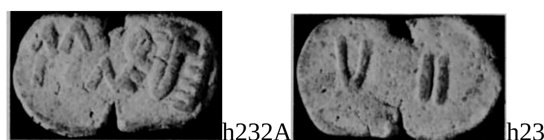


h236A h236B

4658 Incised miniature tablet. Object shaped like fish or sickle? h825A h825B



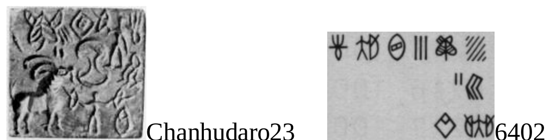
h237A h237B 5337



h232A h232B tablet in bas relief 4368 Inscribed object in the shape of a double-axe.



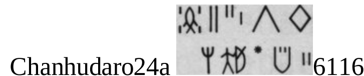
m0592At m0592Bt 3413 Pict-133: Double-axe (?) without shaft. [The sign is comparable to the sign which appears on the text of a Chanhudaro seal: Text 6402, Chanhudaro Seal 23].



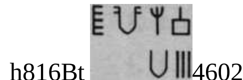
Chanhudaro23 6402

Goat-antelope with a short tail.

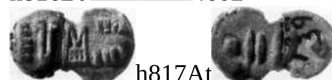
The object in front of the goat-antelope is a double-axe.



Chanhudaro24a 6116



h816Bt 4602

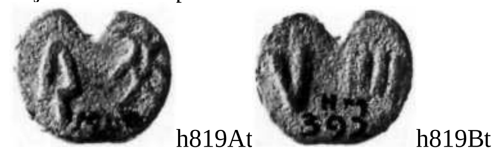


h817At

h817Bt Inscribed object in the shape of a double-axe. One or more dotted circles.



h818At h818Bt Inscribed object in the shape of a double-axe. 4376



h819At h819Bt

Shape of object: Blade of a weapon?



5302



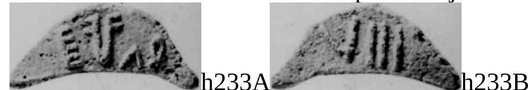
h821At h821Bt Shape of object: axe.



h822At h822Bt Shape of object: axe.



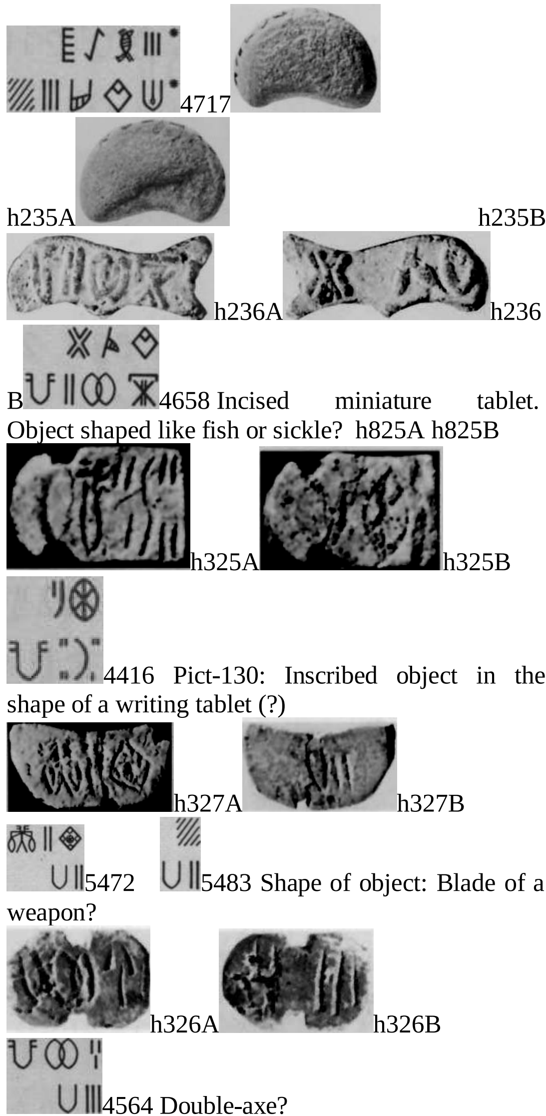
h233A h233B



4387 Tablet in bas-relief. Sickle-shaped. Pict-131: Inscribed object in the shape of a crescent?



h234A h234B


4717 h235A h235B h236A h236 B 4658 Incised miniature tablet. Object shaped like fish or sickle? h825A h825B h325A h325B 4416 Pict-130: Inscribed object in the shape of a writing tablet (?) h327A h327B 5472 5483 Shape of object: Blade of a weapon? h326A h326B 4564 Double-axe?

Substantive: *bar, bar.i* house, household; *cas bari, cas bar.i* farm and stock; *cas, casbas* cultivation; growing crops; *casedale* we cultivate (for a living); *cas bar.i* a farm, an agricultural holding; *cacasic* a husbandman; *casa* a husbandman, a farmer (Santali) *ba_r* [Dh. Des. *dva_ra_yi_, duva_ra_i_,* fr. *dva_ra_n.i* door, fr. *dva_ra* a door] a door; a courtyard in front of a house; *ba_ran.um* a door; a gate; an entrance; the courtyard in front of a house (G.)

Substantive: harbour: *ba_rum* a door; a gate; an opening; a harbour; a haven; a port; the mouth or entrance of a harbour; *ba_ri_* a window, a sally-port; an escape (G.)

bha_ravum to keep live coals, buried in the ashes; *ba_ran.iyo* one whose profession is to sift ashes or dust in a goldsmith's workshop; *ran.i_* a small part of gold handedover to a goldsmith tomake ornaments of [Hem. Des. *rayan.i_* fr. Skt. *ratni_* a small jewel](G.)

Glyph: *bar, barea* two (Santali)

Glyph: *garo* eleven (Santali)

Glyph: *ga~r.a~* shoot springing for toot of a plant (Santali)

Substantive: *garia* in comp. possessed of; doer or agent; *badgaria* wise; *bal garia* strong; *d.ahgaria* envious; *rojgaria* one who provides for daily wants (Santali)

The first sign may be: *kol* 'smithy, blacksmith' of *bolom* 'spear'; rebus: *bal* 'iron ore' or, *dol* 'arrow'; rebus: *dolan* 'a large house built of brick or stone having a flat terraced roof' (Santali) *d.olo* gain, profit; an important business (G.)

Glyph: fish '*hako*'; rebus: *hako* 'axe'

bar, barea 'two'; *bari_* 'blacksmith'; thus, the two heads of one-horned bulls may connote: *bari_ vahoro* (glyphs: two, heifers); substantive: blacksmith, trader. The nine leaves connote: *lo* (nine); *lo* (ficus); *lo* [*loha*, metal (copper)].

> **bari_** = blacksmith, artisan (Ash.)(CDIAL 9464). bari_, ba_ri_ (Wg.); bari_ (Kt.); ba_ri_ (Pr.) bha_ran. = to spread or bring out from a kiln (LO.); bha_rvu~ = to keep live coals buried in ashes (G.); bha_rn.e~,

bha_l.n.e~ = to make strong by charms (weapons, rice, water), enchant, fascinate (M.)

The staff (+ sheaf?) with a ligatured device in the center may connote: *kan:gra* 'portable furnace' (as a possession of the seal owner, together with other possessions indicated by the epigraph, text 1387). The two heads are joined into the device with dots, perhaps connoting dotted circles. A pair of beads are seen to be emanating from top of the device, below the branches with nine ficus leaves. *ha_s* 'beads'; *hasanti* 'furnace'


h585

h086



4233

Kalibangan032a

Nippur; ca. 13th cent. BC; white stone; zebu bull and two pictograms

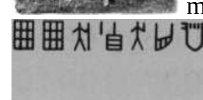
Glyphs: 'joining' 'a staff'; brahmani bull: ad.ar d.angra Brahman.i bull; rebus: aduru 'native metal'; d.han:gra 'smith', i.e. metalsmith.

Alternative:
khun.t.iyo an uncastrated bull (Used in Ka_t.hia_wa_d.); *khu_n.t.ad.um* a bullock (used in Jha_la_wa_d.) (G.)
khun.t.i 'a post' (Santali) *khun.t.um* a stump; portion of a tree or plant left in the ground; *khu_n.t.iyum* an upright support in the frame of a wagon (G.)
khun.t.au 'to tie or bind to a post' (Santali)

Glyph: *khan:ghar, ghan:ghar, ghan:ghar gon:ghor* 'full of holes' (Santali)
Substantive: *kan:gar* 'portable furnace' (K.) *kag* deep pool in river (Ko.)(DEDR 1085).


m0519At

m0519Bt


1710

berga small of stature, under-sized, as an ox (berga d.an:gra okaenae? Where is the undersized ox? (Santali) *[begri* lapidary (H.)]

d.an:gra an ox, a bullock; mun.d.ra d.an:gra a polled ox; ran:gia d.an:gra a red ox; d.an:gri cattle in general, a cow (Santali.lex.) [cf. kot.u (Ta.) > d.o_ng (Kuwi) bent, crooked (DEDR 2054). cf. mat.an:kal bending, being bent, crook, angle (Ta.)(DEDR 4645)]. d.ege old, weak (Wg.); d.a_g, d.ye_g old (Wot..); d.aga (Gaw.); d.a~_go lean (eg. of oxen)(Ku.); d.ha~_go lean; skeleton (Ku.); d.a~_go male of animals (N.); d.a_n. wicked (A.); d.a_n:ga one who is reduced to a skeleton (Or.); dan:gor lazy





(Bashg.); d.angur, d.angaras fool (K.); d.an:gar stupid man (P.); d.a_n.re large and lazy (N.); d.in:gar contemptuous term for an inhabitant of the Tarai (N.); d.in:gar vile (B.); di~glo lean, emaciated (Ku.); d.in:gu crook; d.in:go crooked (S.); d.in:ga_ (L.P.); d.i~go, d.in:go abusive word for a cow (N.); d.hagga_ small weak ox (L.); d.han:garu lean emaciated beast (S.); d.hin:garu id. (S.)(CDIAL 5524). t.u_n.d.a_ decrepit (L.); t.un.d.a one who has a naturally crooked or withered arm (K.)(CDIAL 5468). d.ha~_kal., d.ha~_ku_l. old and decaying, bare of leaves etc. (M.); d.han:garu lean emaciated beast (S.); d.in:gu crook; d.in:go crooked (S.); d.in:ga_ (L.P.)(CDIAL 5524). ton:ku-kir..avan- decrepit, old man (Ta.lex.) Strong: tumra big, strong (RV.); trum, trom to dare; trom to be able

(Gypsy)(CDIAL 5873). d.an:gur bullock (K.) horned cattle (L.); d.a~gar horned cattle (L.); d.an:gar cattle (P.); d.an:gara (Or.); d.a~_gar old worn-out beast, dead cattle (Bi.); dhu_r da~_gar cattle in general (Bi.); d.a_n:gar cattle (Bhoj.); d.a~_gar, d.a~_gra_ horned cattle (H.); da~_gar id. (H.); d.hagga_ small weak ox (L.)(CDIAL 5526).

Bulls and other animals are represented in sitting posture, both a. in profile and b. also seen from the front with their legs turned to either side. One bull with one horn is carrying daggers and tongs on either hand. Protol-Elamite seals from Susa, c. 3000-2750 BCE. [After Amiet 1980: pl. 37, no. 570 and 569].

d.an:gr.a (Sad.) = the time of youth; adj. With kor.a or hor.o, a young man, a youth; asul-dan:gr.a = to bring up to manhood; dan:gr.ane = like a young man; dan:gr.a-dan:gr.iko = collective noun, the youths and maidens (Mundari.lex.) d.an:ggar = a stupid, a simple man (P.lex.)

dhagun sagun = bristly, coarse (Santali.lex.) dandle = hair hanging loose, hair unfastened and unkempt (Santali.lex.)

Sign 48 and variants [Orthography: seated skeletal person].**d.ha~go** = skeleton; lean (Ku.); d.a_n:ga = one who is reduced to a skeleton (Or.); d.a~_gar, d.a~_gra_ = starveling (H.); d.ha~_kal., d.ha_~ku_l. = old and decaying (M.); d.ege = old, weak (Wg.)(CDIAL 5524).

Glyph: *ur-ukku* to jump, leap over (Ta.); *uRk* to run away (Kond.a); *urk* to dance (Kuwi)(DEDR 713).
Substantive: *urukku* steel, anything melted, product of liquefaction (Ta.); *urukku* what is melted, fused metal, steel (Ma.); *uk* steel (Ko.); *urku, ukku* id. (Ka.)(DEDR 661).

Dholavira Sign-board

Two views of the find-spot in. Dholavira (Kotda) on Kadir island, Kutch, Gujarat, of a 'sign-board' inlaid with signs; each sign is 37 cm. high and 25 to 27 cm. wide and made of pieces of white crystalline rock; the inscription with the set of 10 signs was found near the western chamber of the northern gate of the citadel high mound (Bisht, R.S., 1991, Dholavira: a new horizon of the Indus civilization. *Puratattva*, Bulletin of Indian Archaeological Society, 20: 81; Bisht, 1991: 81, Pl. IX; now also Parpola 1994: 113). The signs were apparently inlaid in a wooden plank ca. 3 m. long; maybe, the plank was mounted on the facade of the gate to command the view of the entire cityscape. Some archaeologists believe that the gate was an entry into the upper town.



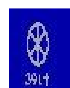
Evidence of trading links between communities in the Sarasvati-Sindhu Valleys and Mesopotamia exists from as early as about 2600 B.C. lead us to surmise that the sign-board should also have been visible to the traders sailing on boats into the port-town of Dholavira on the Gulf of Kutch which should also have been a water-way circa 5500 years ago linking with the Makran Coast (south of Karachi) and the Persian Gulf.

Ten signs on the sign board



Ten signs presented on a monolithic sign-board of Dholavira (Kotda):

The 'spoked circle' sign seems to be the divider of the three-part message, advertising the processing facilities of a smelter/metal-smith's workshop.

The glyph  could be **era, erka** 'nave of wheel'; rebus: **era, eraka** 'copper'. The third sign from left could be a glyph of **kamat.ha** 'ficus leaf'; rebus: **kamat.amu** = a portable furnace for melting precious metals (Te.)

The left-most part of the three-part message could connote: portable furnace for melting copper, tin (?) [The second sign from left could be **khu~t.i** 'pin or peg' (M.); rebus: **kut.hi** 'smelting furnace' (Santali)]

The middle part of the three-part message could connote: copper, bronze (**kanac** 'corner'; rebus: **kan~cu** 'bronze' (Te.), mineral (**dha_tu**; rebus: **d.a_t.o** 'plug or cork'); **kod.** 'workshop'; **kon.d.a** 'fire-pit'.

The righ-most part of the three-part message could connote: mineral (**d.ato** 'claw'; rebus: **dha_tu** 'mineral') copper furnace (**bhar** 'oven or kiln'; rebus: **bar, barea** 'two'); **d.ato** 'claw'.

The sixth sign from left could be glyph **d.a_t.o, da_t.o** a plug, a cork, a stopple (G.); tenth sign from left could be a glyph of **d.ato** 'claw'; rebus of both glyphs could be:

Substantive: **dha_tu** 'mineral' (Vedic); a mineral, metal (Santali); *dha_ta* id. (G.) dha_tu substance (RV); elemnt (MBh.); metal, mineral, ore (esp. of a red colour)(Mn.); ashes of the dead (Skt.); dhatu relic (KharI.); dha_u metal, red chalk (Pkt.); dha_u ore (esp. copper)(N.); dha_u_, dha_v a partic. Soft red stone; dha_vad. A caste of iron-smelters; dha_vd.i_ composed of or relating to iron (M.)(CDIAL 6773). dhau dhau = blazing, flaming, brightly (Santali) dhatu = a mineral, metal (Santali)

Glyph: strand: tridha_tu = threefold (RV); **ayugdha_tu** having an uneven number of strands (Ka_tyS'r.); **dha_i_** wisp of fibres added from time to time to a rope that is being twisted (S.); dha_i~_ id. (L.) (CDIAL 6773).

Glyph: attack: dha_d.i_ assault (Pkt.); dha_r. attack by robbers (H.); sudden assault (G.); dha_d. attack (M.); dha_d.i id. (Kon.)(CDIAL 6772). Ta_t.u = to strike against (Ka.); ta_d.u = to butt with horns (Ka.); ta_d.uni = to gore, butt; ta_d.u goring; ta_n.t.a_vuni to make collide (Tu.); ta_n.t.i to hit (Kor.)(DEDR 3156).

Glyph: leaping: ta_n.t.u = leap across (Ta.); ta_n..t.uka to jump across (Ma.); ta_n.t.u to leap, cross; da_t.u, da_n.t.u to jump, cross (Ka.); da.t. to cross (Kod.); da_n.t.uni to cross (Tu.); da_~t.u to leap, jump, cross over; a leap, a jump, crossing or passing over (Te.); dat. to cross (Kol.); d.a_t. to hop, jump (Kond.a); trad.d.ing to skip, prance (Br.); ta_n.d.ava S'iva's dance (Skt.)(DEDR 3158). [Glyph of a leaping tiger.]

Glyph: leaf stak: d.i~_t.u, d.i~t.u~ leaf stalk (G.); d.a_t.ho fibres and stalk of tobacco leaf (S.); t.a_n.d.a_ dry stalk of ba_jra_ (L.); t.a~_d.a_ (P.); ta_ndro dry stalk or straw (Or.); da_n.t.hi hard stalk of a creeper, stalk-like bean (Or.); d.a_~t.h, d.an.t.ha_ stem, stalk (H.); tan.d.aka tree-trunk (Skt.)(CDIAL 5527). ta_~t.a = bark (Te.); ta_t.i = bark, skin (Ka.)(DEDR 3155). tan.t.u = stalk, stem (Ta.Ma.); tad., tan.d. = stem of plant, trunk of tree (Ko.); tod. = trunk of tree (To.); dan.t.u, dan.d.a stalk (Ka.); dan.t.u stalk of certain grains and vegetables; dan.d.u stalk, as of a plantain leaf (Tu.); dad.d.u short stubble left after reaping (Tu.); dan.t.u stalk of great millet (Te.); dend.e stalk(Kol.); d.an.diid. (Kui); d.and.a sugarcane (Kuwi)(DEDR 3056). D.ha_t. = a kind of coarse high grass (Santali) d.at.hi, d.at.i = the petioles and mid-ribs of a compound leaf after the leaflets have been plucked off, stalks of certain plants, as Indian corn, after the grain has been taken off (Santali)

da_t = a pick, a mattock; dauli = a weeding knife, of iron or wood; datrom = a toothed sickle; sambhe datrom = a sickle with a ferrule or iron ring on the handle where the tang enters to keep it fro splitting; datre = a small sickle (Santali) [Note glyph of a person carrying a sickle in front of a woman with disheveled hair.]

d.ato 'claws or pincers (chelae) of crabs'; **d.at.om, d.it.om** to seize with the claws or pincers, as crabs, scorpions; d.at.kop = to pinch, nip (only of crabs) (Santali)

dar.u = large, big; d.at.hu, d.at.kup, d.at.u = big headed, bullet headed (Santali)

Glyph: Boar with huge tusk

Alternative: dat.t.ha_ = large tooth, fang, tusk (Pali); dam.t.ha_ fang (Pkt.); da_t.hiru = tusked (S.); da_t.ha_ , da_t.ha large tooth, tusk (Pali); da_r.h = tusk, root of tooth, bite (of an animal) (L.)(CDIAL 6250). da_t = a tooth; d.at.a = a tooth, the teeth (Santali)

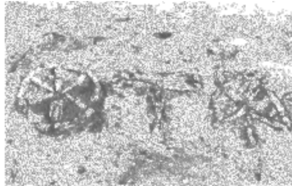
da_tela = a large wild boar with huge tusks (Santali)

The seventh sign from left is a long linear stroke: | This connotes **kod.a** 'one' and rebus could be: **kod.** 'workshop'; **gon.d.a, kon.d.a** = fire-pit (Kon.lex.)

kod.a, kor.a = in arithmetic one; 4 kor.a or kod.a = 1 gan.d.a = 4 (Santali.lex.)

A variant of Sign 256 – **T** -- also occurs on a Rehmandheri seal and is flanked by two scorpions; a frog (or, a woman with spread thighs also appears).

Reduplication of ‘wheel’ glyph: *bar got.an:* two each, *bhar* ‘oven’, *kod.* place where artisans work. *gad.i got.an:* two wheels; *gad.h* fort, *kod.* smithy; or, *kun.d. got.an:* ‘furnace (*kun.d.),* smithy (*kod.)*’



Segments of the inscription on the Dholavira sign-board occur together with the Bra_hman.i bull pictograph indicating the essential link between the sign-board obviously indicating the wares produced by the armourer and the list of weapons detailed on the Bra_hman.i bull seal (either as property items or as bills of lading for transporting the produced items for packaging and trade).

Inscribed weapons

2925 Inscribed bronze implement (MIC Plate CXXVI-5)

2903 Incised copper tablet

2923 Inscribed bronze implement (MIC Plate CXXVI-2)

2924 Inscribed bronze implement (MIC Plate CXXVI-3)



cf. also text 2119 on a seal inscribed with a zebu or bra_hamn.i bull: 2119 Seen from left to right, the two spoked wheels, a linear stroke, a ^ sign, a rhombus sign -- the set of five signs -- constitute the fifth to ninth signs (i.e. five signs) of the Dholavira sign-board, read from left to right. The signs of this Bra_hman.i bull seal and the Dholavira sign-board can be explained in the context of the armoury of the kut.ha_ru, a basic contextual key to the decipherment of many

Table 4
(reading after Parpola No. 685)

DK 7535

DK 7814

DK 10551

HR Sealing

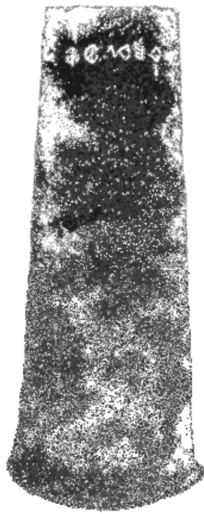
DK 7856

inscriptions deduced from the fact that the sequence of signs occurs also on weapons themselves, and the reasonable assumption that only a metal-worker had the competence to inscribe on metal.

The inscriptions on the bronze-weapons as read by Parpola (1975: 184) and tabulated in Ute Franke-Vogt, Inscribed bangles: an inquiry into their relevance, in: Frifelt, Karen and Per Sorensen (eds.), *South Asian Archaeology*, 1985, Curson Press. Inscribed blades have also been found at Ugarit. "The axe-blades from Ugarit are found in the house of the 'High Priest', and dated 15th-14th centuries BCE.(Shaeffer 1939: 107ss, Figs. 10-103, Pl. XXII-XXIV; For the Ugaritic axes, cf. Pritchard 1954, 81, No. 261). Some of these also occur on inscribed stone bangles. Also found in a hoard they form part of offering gifts to the 'Grand Pretre' (Schaeffer 1956: 269). Inscribed weapons are further reported from Harappa Vats 1940: 384ss, Pl. CXX, 5,19), Chanhu Daro (Mackay 1943: 178, Pl. LXXIV, 1-1a,8) and Kalibangan (Mahadevan 1977:7). Decorated arrowheads are known from the Arabian Peninsula (Donaldson 1984: 257, Fig. 26), but cannot be dated before 1600 BCE (pers. comm. B. Vogt)." (Ute Franke-Vogt, opcit, 1985, p. 245).

2926 Inscribed bronze implement (MIC Plate CXXVII-1)

2928 Inscribed bronze implement (MIC Plate CXXXIII-1)



(a)



(b)



(c)



(d)



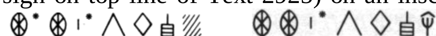
(e)



(f)

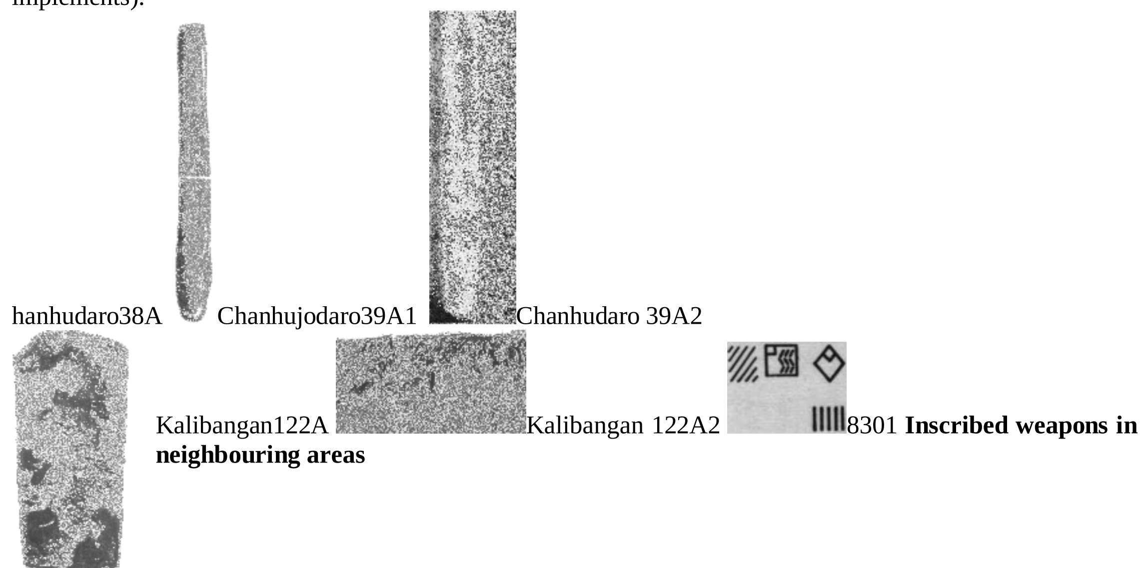
Seven script signs recurring on two inscribed copper axes and on a seal and a seal impression, Mohenjodaro; obverse (a,c) and reverse (b.d) of two axe blades (2798=DK7856 and 2796=DK7535) in room 15, house I, block 12A,G section, DK area together with a copper hoard; e is a fragmentary seal (2119) from room 5, house I, block 26,G section, DK area; f is an impression of a seal (c. 4.5cm sq.) on a clay tag found in the drain 124, house X, block 8, HR-B area.Drawn after Mackay 1938: II, pl. 126:t and pl. 131:35-6; Photo archive of the ASI, Sind Vol. 17, p. 79: 400 (=a,b); Mackay 1938: II, pl. 126:2; pl. 131:31; Sind vol. 17, p. 80: 403-4 (=c,d); Mackay 1938: II, pl. 85: 119 (=e); CISI 2: 183, M-1384 (=f); cf. Parpola, 1994, p. 108. e and f: Mohenjodaro, HR Sealing; Seal impression (HR-B, Bl. 8, X, 124); depicts the impression of a huge square seal (about 4.5 cm. square) on a lens of fine tempered clay which is burnt at low temperature. Almost all the ten signs seem to be intact with indications of the ear of a 'one-horned bull' on the right portion of the seal impression. The text of the inscription is similar to the inscriptions found inscribed on bronze weapons (DK 7535, DK 7814) and on a seal with inscriptions above a zebu bull (DK 10551, Mackay 1938 No. 119). DK 7535 is a bronze-blade which is part of a copper-hoard discovered in DK-G, Bl. 12A, I, 15 at a depth of 24.4 ft. The zebu seal also comes from DK-area, but Bl. 26, I,5 and a depth of only 6.7 ft. below surface.

Its ligature (inlaid) in a oval (first sign from r. on bottom line) on an inscribed weapon (Text 2923) and another ligature (first sign on top line of Text 2925) on an inscribed weapon indicates a possible association with a metal artefact.


2923 2925

That a line on text 2119 on a zebu seal (1) is identical with that on a seal impression of another zebu seal and (2) is also identical with the text on an inscribed bronze implement is instructive and leads to three hypotheses:

1. The list composed as a text line containing ‘signs’ is a catalogue of metals (weapons or commodities); hence, each sign is a rebus representation of a ‘metal (weapon or commodity)’.
2. The seal impression constituted a bill of lading for traded metal (armour and weapons or commodities).
3. The zebu [khu~t. (G.)] is a rebus representation of a metal-smith, an armourer, maker or manufacturer of weapons, kut.ha_ru (also interpreted in Skt. as ‘writer’, a person also capable of inscribing on metal implements).

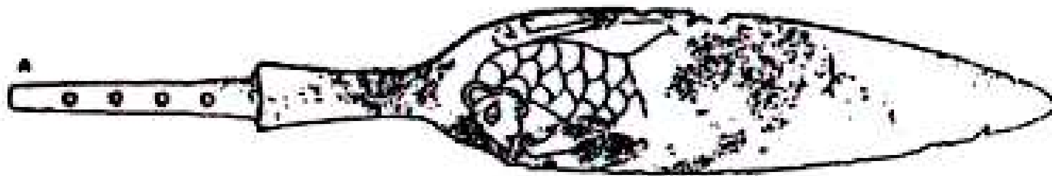


hanhudaro38A Chanhujodaro39A1 Chanhudaro 39A2 Kalibangan122A Kalibangan 122A2 8301 **Inscribed weapons in neighbouring areas**

Tigers inscribed on an axe. Axe from Anoukhva, early first millenniu. Koban culture, North Caucasus. Similar axes have been found in Transcaucasia (western Georgia – ancient Colchis –) and are part of a rich florescence of bronzework in this period. Hermitage Museum, St. Petersburg. [After Philp L. Kohl, Central Asia and the Caucasus in the Bronze Age, in: Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, p. 1057].

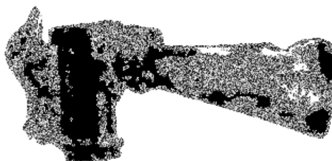


Weapons of copper have been discovered at Nippur, Fara, Tell Sifr: hammers, knives, daggers, hatchets, fetters, fish-hooks, spear-heads; some weapons have **rivets for wooden handles; also found were: mirrors,**



net-weights, vases, dishes and cauldrons (cf. *King, Sumer and Akkad***, p. 26;** and *Hilprecht, Explorations***,** p. 156**).**

ara = lion (Akkadian); **ara** = copper (Akkadian)



Shaft-hole axe. Silver and electrum. Boar and lion adorn the axe. 5.9 X 12.5 cm. From the temple of godess Kiririsha at Tchoga-Zanbil (near Susa in southwestern Iraq), capital of king Untash-Napirisha, c. 1250 BCE. Cuneiform inscription in Middle Elamite language; trans. 'Me, Untash-Napirisha'. Musee du Louvre. AO (sb 3972). [After *Naissance de l'ecriture* : cuneiform et hieroglyphs, Paris,1982: 103, no. 60].

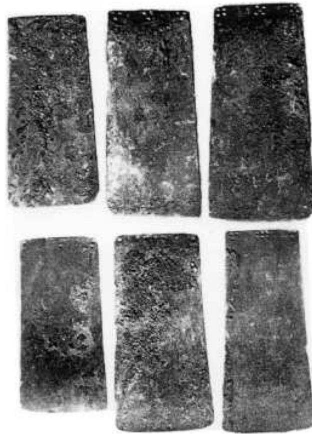


Axe-head, Hamadan (Ecbatana), Persia [British Museum, 1904, *A Guide to Antiquities of Bronze Age*, London, British Museum, Fig. 124] 'The Persian bronze industry was probably influenced in the first instance by Mesopotamia. Axe-heads with shaft-holes and ornamentd with lions in relief have been found in the country, and one from Ecbatana is in the collection (fig. 124); tanged spear-heads and other bronze objects were excavated from a mound at Asterabad; and from Khinaman in West Kerman come similar spear-heads, bronze cups, large pins, and a remarkable axej-head, in the ornamental projection of which we may trace the degradation of the lion-design of fig. 124. To judge from their types, and from the reported

discovery in association with them of late Greek pottery, these objects must belong to a period when iron had long been in use further to the west. In the district of Lenkoran, on the south-west shore of the Caspian, now Russian territory, M. de Morgan discovered tombs of an early and a late Bronze period, characterized respectively by large cists containing daggers without metal handles, and by small cists in which were found daggers with cast hilts, and long sword-blades.' (ibid., pp. 128-129).



Axe-adze. Ram Shamra (ancient Ugarit), Syria. Cuneiform inscription: **h.rs.n rb khum** 'axe of the high priest'. 13^{th} cent. BCE. Bronze. 23 X 5 cm. Musee du Louvre. AO 11 611. [After *Naissance de l'ecriture* : cuneiform et hieroglyphs, Paris,1982: 178, no. 117].



Inscriptions on metal objects

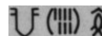
Copper celts with various indentations. Ganeshwar (Rajasthan). 3^{rd} millennium BCE, OCP Complex. [After Pl. 11.5 in RC Agrawala and Vijay Kumar, 1982]

The early intimations of 'writing' are found on Ganeshwar flat celts. "The average weight of a Ganeshwar celt is approximately one to 1.5 kilograms. All these flat celts were prepared from molds by cire perdu technique. The butt portion of the celts have round indentations in groups of four, five, six, eight, nine, 12 and as many as 15 in different combinations of one, two, three, four and six dote. These combinations are repeated on many inscribed objects of SSVC with short strokes (instead of dots); the practice of incising on the butt ends of weapons also continues. The varied permutations and combinations of dots recall somewhat similar marks on the Chalcolithic celts from Navdatoli (Wheeler 1959: Pl. 25) and Kayatha (Ansari and Dhavalikar 1975: 150). At Kayatha these celts were assigned a date of 2000-1800 BCE by C14 determination…The indentations on these objects were made with pointed copper drills which have been found at Ganeshwar." (RC Agrawala and Vijay Kumar, 1982, p. 128).

Two double axes of Copper Hoard culture are found from Bhagrapir (Orissa); about 40 cm. Wide, 1 to 3 mm. Thick. Apparently, these could not have been used as axes. Five such double axes have been found from the Kangsavati valley in Bengal. **Such types of metal objects have been used for land grants in historical periods**. [DH Gordon, *Prehistoric background of Indian culture*, Bombay, Mandhuri Dhirajlal].

Silver and copper plate epigraphs

There are seals of silver and copper. Copper plates are also used to record epigraphs.

m1199A 2520 Silver seal m03172016 Silver seal  Mohenjo-daro. Copper seal. National Museum, New Delhi. [Source: Page 18, Fig. 8A in: Deo

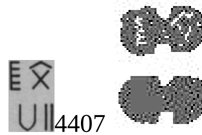
Prakash Sharma, 2000, *Harappan seals, sealings and copper tablets*, Delhi, National Museum].  m0475At 3247 Copper tablet

Inscriptions on bangles and metal-weapon-shaped tablets

In the Bharatiya tradition a bangle is also worn by a warrior. It is the kan:kan.a, a badge of valour.

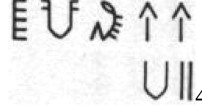
Some objects are shaped like a double-axe (FS 133), some like a sickle (?or crescent FS 131), some like a fish (FS 68), some like a tortoise (FS 70), some like a leaf (FS 79).

MN-S	83-625	MN
	84-9	
MN	83-2966	MN
DK	8109	DK-G
DK	7386	DK-G
SD	187	SD
SD	1263	SD
MD	83-620	
DK-G	83-618	DK-G
DK-A	83-627	DK-A
HR-E	83-621	HR
	84-5	
	84-1	
SD	76	SD
SD	538	SD
DK-M	83-615	DK-M
E	63-613	DK-E
MN-E	83-616	MN
MN-S	83-629	MN
	84-10	
	84-2	
HR-E	83-622	HR
	84-8	
G	1357	DK-C
DK	634	DK
	84-6	
DK-G	6430	DK-G
MN-S	83-624	MN
MN-S	83-626	MN
MN	83-617	MN
MN-E	83-612	MN
MN-X	83-623	MN
HR-E	83-619	HR
DK	7103	DK-G
E	83-614	DK-E
W-S	83-628	S of L
	84-4	
HR	5616	HR-B



4407 Pict-129: Inscribed object in the shape of a double-axe or double-shield? [17 out of 17 occur at Harappa]

There are tablets shaped like weapons: double-axe, sickle.

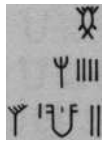
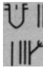
h232A  h232B tablet in bas relief  4368 Inscribed object in the shape of a double-axe.

 h233A h233B  4387 Tablet in bas-relief. Sickle-shaped. Pict-131: Inscribed object in the shape of a crescent?

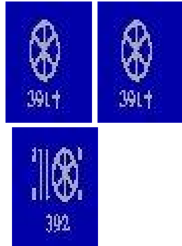
Inscriptions on bangles

Reg. Number, area and inscription on bangles and bangle-fragments. "From the 38 inscriptions at disposal 17 consist of 1 sign, 11 of 2 signs, 4 of 3 signs, 2 of 4 signs and 1 of 5 signs…Two bangles, Nos. W-S 83-628 and 84-4, bear similar 2-line inscriptions, consisting of 3 and 1 sign respectively. These two pieces are also noteworthy with regard to their exceptional red ware and polish.".[After Table 1 in Ute Franke-Vogt, Inscribed bangles: an inquiry into their relevance, *South Asian Archaeology 1985*].

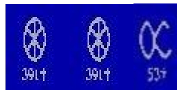
 h236A  h236B  4658 Incised miniature tablet.

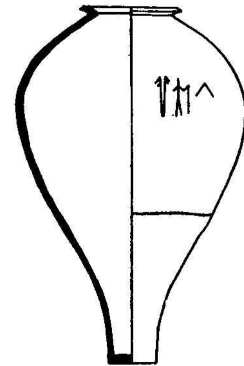
2929 Incised on pottery 2931 Graffiti on pottery The sign also gets ligatured to three linear strokes (an apparent indication of counted objects) in text 2931.

Signboard on north-gate, Dholavira [Association with *kot.* fort is also apparent from the name of the Dholavira village: *kot.d.a*]



The 'spoked-wheel glyph' is the divider of the three-part message.

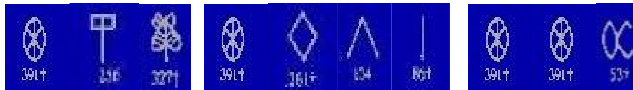
The reduplicated 'spoked-wheel glyph' is associated with 'claw of crab' glyph in the first part of the three-part message of the sign-board. The latter glyph is dat.o 'claw of crab'; rebus: dha_tu 'mineral' (perhaps tin); hence, the three signs together may be read as: two wheel + claw (barea ara + dat.o); rebus: baria ara (merchant copper) + dha_tu (tin), i.e., tin, copper merchant.



The components are: bar, barea 'two'; rebus: baria 'merchant'; alternative 1: kin 'double'; gina 'metal vessel'; alternative 2: *dohra* 'double'; *dohra* metal-workers; *doht.a* 'two houses' (substantive: metal-work), *gad.h* fort. The circumgraph of four short strokes is: *gan.d.a* 'four'; gan.d.a warrior . Thus, the glyph combinations connote: metal-workers house; and a warrior living in a fort: *gad.h* [*dohn.i_* pot containing the funeral fire; a milkpan; a trough (G.); *dohro*, *duho* a couplet (G.)] *d.oh* a pit for water; a deep ond (G.); *sandoh* (Skt.)

phut.ia = coppers, bronze coin; phut.ia banuktina = I have no coppers (Santali.Bodding); phu_t.a_ = broken (H.) phut.ia kaud.i, put.aia kaud.i = shells used as money, cowries; twenty make one pice. Commonly used as ornamentation on bullocks, buffalo calves and on drums; phut.ia kaud.i = ka_r.a_ kaud.i (Santali.Bodding) **pe_d.ha** = lump (Pkt.); pud.a, pud.aia = lump-shaped (Pkt.); pum.d.aia = id., globular (Pkt.); pu~r = spleen (Wg.); pun.d.ik = upper knob of an axe (Pr.)(CDIAL 8377)

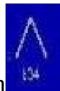
Is the lady pushing aside the two quarrelling persons carrying two uprooted stumps of trees on m0478B the same lady (with one left eye, **da_kannu**), d.a_kin.i, shown pushing aside two quarrelling tigers or jackals?



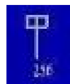
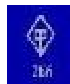
Inscription on pottery storage jar {After Pl. LXIII, 3 in: Mackay, EJH, Further Excavations in Mohenjodaro, Vol. II).

dhakna = an earthenware lid for a t.ukuc; dhakni, dhaknic = an earthenware lid for a kan.d.a; d.hakon = a cover, lid, to hush up (Santali.lex.) d.hakao = to cover, obscure (Santali.lex.) d.alu, ad.alulo to cover something (Boind.a) d.a_narai lid of pot (Bond.a.Hindi) d.aren-mund.i lid of pot; d.aren, ad.aren to cover up pot with lid (Bond.a); d.arai to cover (Bond.a.Hindi) d.a_gu, da_gu = to hide (Te.lex.) da_gu = to be hidden or concealed; da_gud.u = to hide oneself (Te.lex.) d.han:ka_vum = to be covered; to be closed; to be concealed; d.ha_nkakum, d.ha_n:kan.um, d.ha_n:kan.um, d.ha_n:kan.iyum = a lid; a cover; a covering; protection, protector; d.ha_nkan.i_ = a lid; a cover; a covering; an earthen vessel serving as a lid for another; d.ha_n:kavum [Hem. Des. d.han:kan.i_ = Skt. pidha_nika_, a lid, a cover from api-dha_na a cover fr. api all round + dha_ tto put Or, Hem. Des. d.hakka = Skt. Skt. cha_dayati it covers] to cover; to close with a top or lid; to overspread a thing with something else; to shut, close; to hide, to conceal (G.lex.)

The lid on top of the narrow-necked jar [See m0478B] is paralleled on the Dholavira sign board by

Sign, an inverted V; this sign occurs in the second of three sequences (read from left to right) started by the spoked-wheel glyph (rebus, put.hi, ‘copper ingot’). Does it connote **d.a_kin.i**, ‘sword’, a phonetic determinant of khan.d.a, ‘sword’ (kan.d.a, ‘pot’; kan.d. kanka, ‘gold altar, furnace’)?

man.d.iga = an earthen dish (Te.lex.) man.d.e = a large earthen vessel (Tu.lex.) man.di earthen pan, a covering dish (Kond.a); cooking pot (Pe.); brass bowl (Kui); basin, plate (Kuwi)(DEDR 4678). man.d.e = head (Kod.)(DEDR 4682).

Sign 256 Sign 261 Sign 266

Sign 266 is a ligature of Sign 256 and Sign 261. Sign 256 also occurs on the Dholavira Sign board together with Sign 261.

Sign 256:

pacar = a wedge driven ino a wooden pin, wedge etc. to tighten it (Santali.lex.)
pacri = an enclosing wall, to enclose by a wall (Santali.lex.)
pacr.ao = to thrown down, to overcome (Santali.lex.)
pasra = a smithy, place where a black-smith works, to work as a blacksmith; kamar pasra = a smithy; pasrao lagao akata se ban:? Has the blacksmith begun to work? pasraedae = the blacksmith is at his work (Santali.lex.)



The sign-board has ten signs of which as many as four depict a spoked wheel with six spokes. This sign occurs on inscribed weapons and is closely associated with the zebu bull pictorial motif [read as a rebus representation of kut.ha_ru, armourer, inscriber]. This sign of a spoked wheel also occurs in association with a sign depicting an armed guard on a seal, Chanhudaro30

mat.od.um earth, clay, mud; a clod of earth; *mat.od.i_* earth, clay, dust; *mad.iyo, mad.a* gravel (G.)

mat.akki to bend as the arms or knees (Ta.); *mat.akku* knuckle (Ta.)(DEDR 4645).

Glyph: *sal* ‘horns of a bull’; substantive: *sal* ‘smithy, workshop’

mod.um the face; *mun.d.a* the head; *mon.d.um, mod.hum, mon:* [Hem. Des. *mod.e* fr. Skt. *mun.d.am* the head] the mouth; the tongue; the face; the forepart; an entrance, a passage (G.) *mun.d.a* the head, the neck, the skull; *mu_d.i_* the head (G.)

mon.d. the tail of a serpent (Santali)

men.d.ho [Dh. Des. *mid.ia_o* fr. Skt. *men.d.h, men.d.* a ram; Skt. *medhya* a goat, fr. *medha* a sacrifice] a ram, a sheep (G.) Glyph: *bhed.a, boda* ‘ram’; substantive: *bhin.d.ia* ‘a lump, applied especially to the mass of iron taken from the smelting furnace’

mehra_b = an arch; a vault; a building in the form of a segment of a circle (G.lex.) [cf. the arch surrounding a spoked wheel sign on texts on zebu seals].

mehro = a pa_lki_ bearer (G.lex.)

med.hi = pillar, support (Pkt.lex.)

me~r.he~t = iron (Santali.lex.) **men.d.a_** = lump, clot (Or.)(CDIAL 10308). mer = a kind of large copper or brass pot (G.lex.) mer.ed., me~r.ed., me~r.e~d. iron; en:ga mer.ed. soft iron; sand.i mer.ed. hard iron; ispa_t mer.ed. steel; **dul mer.ed.** cast iron; bicamer.ed. iron extracted from stone ore (Mundari.lex.)

min.t.e, mit.t.i = a kind of weapon, s’aramun.d.i (Ka.lex.)
min.d.u, **min.d.a** = a man of high position or character; a hero; katte citraga_r-ana min.d.a = is an object that he never can draw well; min.d.a = somebody that is above or beyond another’s reach, beyond his faculties, or out of his power; han.a no_t.aga_r-ana min.d.a = is something he likely to make mistake about (Ka.lex.) me_n.t.a, me_n.t.u = adj. showy, boastful; me_n.t.a ga_re = a fop; a rake (Tu.lex.) min.t.iteruvari = the sun, a god, a deity (Te.lex.)

Head servant

mente = an affix signifying for, for the purpose of; also a conjunctive particle which constitutes the sentence it subordinates an adverbial clause of purpose or a noun clause; nahel menteye mak keda = he cut it (a piece of timber) for a plough; rupa menteko idikeda = they took it away thinking it silver (Santali.lex.) mente – affixed to certain roots to form adverbs implying sudden and single action; dhau mente jod gotena = it burned with a sudden blaze (Santali.lex.) cf. me~t = eye (Santali) [The dotted circle could be rebus: **min.d.a**, hero]. Me_t.t.i = excellenece, chief, head, land granted free of tax to the headman of a village (Te.); me_ti = greatness, a big man, a chief, head servant (Ka.); me_t.ari, me_t.i = chief, head, leader, lord (Te.)(DEDR 5091).

me~d.ha_ = crook or curved end (of a horn, stick etc.)(M.); me~r.a_, me~d.a+ ram with curling horns (H.)(CDIAL 10120). Cf. me_n.d.ha = ram (Skt.)(CDIAL 10310). me_l.h goat (without etymology)(Brahui); mr..e_ka (unknown meaning)(Te.); me_~ka = goat (Te.)(DEDR 5087).

me_d.i = glomerous fig tree, ficus racemosa (Ka.); ficus glomerata (Te.); me_r.i (Kol.)(DEDR 5090).

mendi_ = eyelashes (Halbi); kandl mindig (pl.) eyelash (Kol.); mindi, mindi_ (Go.); kon.d.a-min.di eyelid, eyelash (Go.)(DEDR 4864). mitn.e~ = to close the eyes (M.)(CDIAL 10119).

[Thus, when glyphs of an antelope or markhor with curving horns and a ficus leaf are shown, the rebus is: **me_t.i** = an eminent person, head servant; this may explain why a leaf glyph is ligatured with a special crowning on top of the grapheme; when a warrior is shown with a glyph depicting an eye-lash (as on an ivory

plaque), the rebus is: **me_t.i**, **me_t.ari** an eminent person, hero, warrior. Note the ligature of leaf to the body, **me_ndur** = body; hence, the standing person sign may simply represent **me_ndur**, body].

m1653 ivory plaque 1905

men.du = abundance (Te.); me_nd. full (Go.); **me_r.** = full, whole, entire, complete (Go.); na_r. mend.u = the whole village (Go.)(DEDR 5060).

me_n.i = body (Ta.); me_l = body (Ta.); me_ndur (Go.); me_ndol human body (Kond.a); **me~_d, me_d** body, womb, back (Kur.); meth = body (Malt.)(DEDR 5099).

mi~r.u~ = rimless, not having a rim (Santali.lex.)

me_l.amba = the black humble bee (Ka.); milind = a bee of the large black kind (Mar.); milinda = bee (Skt.)(DEDR 5098). [Note the black ant glyphs].

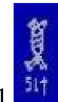
min.d.u = animal passion, sensual longing, lustiness; min.d.i = a lusty female; a woman of nubile age (Ka.lex.) me_n.t.ige = coupling, union (Tu.lex.) [Note coupling, copulating imageries]

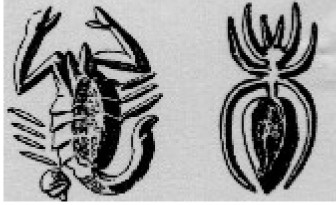
me_n.te = a couple (Tu.lex.) mel.ai = couple (Kon.lex.) [Note pairing of signs; more importantly, note the pairing of animals: two scorpions (kamar, smithy), two antelopes (tagar, tin), two tigers (kol, smithy or forge), two short-horned bulls (d.an:gar, smith), two faces of one-horned bulls ligatured [vahur., worker (of a furnace/workshop, kod.)]. This pairing may be a rebus representation of an honorific, a titling by assigned function: **me_t.i** = an eminent person – a clause of purpose as in Santali; cf. **nahel menteye mak keda** = he cut it (a piece of timber) for a plough].

Scorpion



Tepe Yahya. Scorpion, palm-tree (?), fish and two stars – each image is carved on each side of the four-sided bead steatite stamp seal. The bead is perforated. (After Lamberg-Karlovsky and Tosi 1973: fig. 121)

Sign 51 and Sign 327 



Scorpion and rogalidha on early Cretan seals (After Fig.3 in: Sinclair Hood, 1971, *The Minoans: Crete in the Bronze Age*, Thames and Hudson)



kuma_li_ a particular insect (Ku.); kumbhaka_ri_ wasp (Skt.); kuma_l-kot.i, kamalkot.i a kind of wasp (N.); kuma_rni = the mason wasp (A.); kumha_ri_ wasp-like insect which makes a clay nest (H.); ku~bha_r, ku~bha_ri_, ku~bheri_ = vespa solitaria (M.)(CDIAL 3312). kummarpurugu = a kind off insect resembling the gryllus; the beetle called by the English a carpenter or mole cricket (Te.lex.)

kummarincu (caus. of kummarillu) to pour out of a vessel, bag, basket or the like, to empty, to discharge; to scatter (as perfume); kummarilu = to fall, pour or flow out, gush out, issue forth from a vessel (Te.lex.) [Note the water pouring out of the kumbha or kalas'a in the Mohenjodaro pectoral showing a one-horned bull].

kum.va_ra, kum.vera = the aloe plant (G.); kuma_ri_ (Skt.)(G.lex.) ghi ku~a~r. = cactus species (Santali.lex.) kuma_ri a plant (Pkt.); kuma_ri_ capparis trifoliata (Skt.); ku~a_r-bu_t.i_ = aloe perfoliata (S.)(CDIAL 3304).

kr-ummu, kummu = to butt or gore with the horns; a butt with the head or horns (Te.lex.) **kummula_t.a** = a rough-and-tumble fight, squabble, quarrel; kummula_d.u = to fight, quarrel, wrangle (Te.lex.)

kr-ummu, kummu = to pierce (with a lance-head or rapier point)(Te.lex) **kummu** = v.t. to butt, gore, pierce, as animal with the head or horns, or a man with the elbow, fist etc.; to mix or beat mud chunam or any other thing with a pestle or the feet, to tread; n. a butt, goring; smouldering ashes (Te.lex.)

kummusuddi = a talk or communication by means of signs of symbolical language (Te.lex.) This is mlecchita vikalpa! Cryptography.

2189.Image: bending: kumbu bending, bowing down: a bow, an obeisance (Ka.Ta.Ma.) (Ka.lex.) Image: salutation: kumbu bending, bowing down, obeisance; kumbid.u to bow down, do obeisance (Ka.); kump-it.u (it.uv-, it.t.-) to join hands in worship, make obeisance with the hands joined and raised, beg, entreat; n. worship (Ta.); kump-it.uka, kumm-it.uka to bow down, prostrate oneself, worship (Ma.); kub.ir.- (it.-) to bow down, pray; kumit.e- salutation used by Kota to generally called mundas simply, in contrast to mahali mund.a, ho_

ku~ar = family title of ks.atriyas, boy (Or.)(*CDIAL 3303). ku~ar. = the patronymic of the Hembrom sept of the Santals; ku~ar = prince, the title borne by the second son of a Bhuiya ra_ja_ or zamindar (Santali.lex.)

kummari = a potter; kummra = the caste of potters; kummaravad.u = a potter; kummarasa_na, kummarasa_re = a potter's wheel (Te.lex.) 2192.Potter: kumbhaka_ra potter (Ya_j.Pali); kumbhaka_ri_, kumbhaka_rika_ (Skt.); kumbhaka_raka (Pali); kum.bhaa_ra, kum.bha_ra _ru~d.u (Te.); kumari (Te.); kummal (Pa.Go.); kumbarenju, f. kumbareri (Kui); ku_mbra, kumbra (Kuwi) (DBIA 109). Crucible: kuvai crucible, melting-pot, pon-n-ur-ukkum-kukai < guha_? [iruntai-k-kuvai yotteana (Tan.ikai-p-

(Tu.) ; kuyam (kucam- first member of compound) potter caste (Ta.); kuyavan- potter (Ta.Ma.); kucavan- potter (Ta.); kus'avan (Ma.); kuyatti fem. potter (Ta.Ma.); ko.v Kota man (Ko.); kwi.f Kota man (To.)(DEDR 1762). ko_la_la potter (Dardic); kula_la-cakka potter's wheel (Pali); kra_l potter (K.); kula_l.a (Or.); kara_l.iyo seller of earthenware (G.); karol.iyo potter (G.)(CDIAL 3341). ko_ potter (Ta.); kuvara, ko_va potter (Ka.); ko.v Kota man (Ko.); ko.ka.l Kota village (Ko.); kwi.f Kota man (To.); kwi.ko.l Kota village (To.); kuyam potter caste (Ta.); kuyavan potter (Ma.)(DEDR 1762). kuyam, (kucam- first member of compound) potter caste; kuyavan-, **k**ucavan- potter; fem. kuyatti, kucatti; ko_ potter (Ta.); kuyavan, kus'avan potter (Ma.); fem. kuyatti, kuyavi, kus'avi (Ma.); ko.v Kota man (Ko.); ko.ty Kota woman (Ko.); ko. mog Kota child (Ko.); ko. ka.l Kota village (Ko.); kwi.f Kota man (To.); kwi.ty Kota woman (To.); kwi.ko.l Kota village (To.); ko_va, kuvara potter (Ka.); kusave id. (Tu.)(DEDR 1762). ko.ty Kota woman (Ko.); ko_ potter (Ta.)(DEDR 1762). ko_ve_l. potters (irun:ko_ve_t.kal.u cempu ceyarum :

Badaga or Kurumba (Ko.); kub-id.- (it.-) to salute (not used of religious salutation); ku.d.- (ku.d.0-) to bow, bend down (To.)(DEDR 1750). cf. ku_ppu (ku_ppi-) joining hands as in worship; to join hands as in worship (Ta.); ku_ppuka salute by joining both hands (Ma.)(DEDR 1894).

2136.Munda: **kompat.,** kompa_t., kumpa_t. adj. with mund.a, a genuine munda, one of those

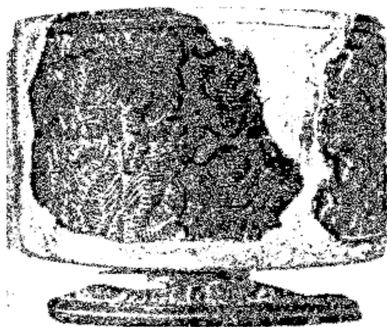
(Pkt.); ku~bha_ru (S.); kumbha_r, kumbha_ri_, kubha_r, kubha_ri_ (L.); kumha_r, kumha_ri_, kamhea_r, kamha_r (P.); kuma_r, kumha_r (Ku.); kum(h)a_le (N.); kuma_r (A.B.); kumbha_ra, kuma_ra (Or.); kumha_r, kumhara_, ku~ha_r, koha_r (Bi.); kumha_r, kumh^{a}ra_ (Mth.); ko~ha_r, ku~bha_r (Bhoj.); kumha_r (H.); ku~bha_r (G.M.); kumba_ru (Konkan.i); kumbala_ (Si.)(CDIAL 3310). kumpaka_ran- potter (Ta.); kumbhaka_ran id. (Ma.); kumo.r-n id. (To.); kumbhaka_ra (Ka.); kumbhaga_r-a (Ka.); kumba_r-a (Ka.); kumbar-a ((Ka.); kuba.re id., stupid fellow (Kod..); kumbaka_re potter (Tu.); kumba_re (Tu.); kumbare potter (Tu.); kumbhaka

pu.Tiruna_t.t.u-p-pu.63)](Ta.lex.) ko_ve crucible, mould (Tu.); crucible (Ka.); kuva crucible (Ma.); kuvai, kukai crucible (Ta.)(DEDR 1816). Potter: kuvara, ko_va potter (Ka.); kusave id

Man.i. 28,34)(Ta.)(Ta.lex.) ve_t.ko_ potter; ve_t.ko_pan- potter; ve_t.ko_van- potter (ve_t.ko_ cir-a_ ar te_rkka_l vaitta pacumat. kuru_ uttiral. : Pur-ana_. 32)(Ta.lex.) ve_l. one belonging to the Ve_l.ir class (Pur-ana_. 24); Ca_l.ukya king; petty ruler, chief; title given by ancient Tamil kings to Ve_l.a_l.as (Tol. Po. 30); (cempiyan- tamir..ave_l. ennun. kulappeyarum : S.I.I. iii,221); illustrious or great man; hero; ve_l.vi (Ta.Ma.); be_luve sacrifice (Ka.); (mun-muyan- r-aritin-in- mut.itta ve_l.vi : Akana_. 220)(Ta.lex.) ve_l(u)pu god or godess, deity, divinity, a celestial, demi-god, immortal (Te.)(DEDR 5544). ko_van- herdsman, king (ko_va n-iraimi_t.t.an-n- (Ci_vaka. 455); ko_valar herdsmen, men of the sylvan tract (kruntan. kan.n.i-k- ko_valar (Ain:kuru. 439); ko_varttan-ar, ko_vintar herdsmen (Ta.)(Ta.lex.). Prince; boy: kuma_ra boy (RV.); prince (Ragh.); young boy (Pali); boy, prince (Pkt.); kuma_raka little boy (RV.); young boy (Pali); kuma_la prince (As'.); koma_r youth (only in razakoma_r)(K.); ku~a_ro bachelor (S.); ku~va_ra, kua_ra bachelor (L.); ku~va_r bride (L.); kava_r, ka~va_ra, kava_ra, kua_ra, kama_ra bachelor (P.); ka~var

prince (P.); kaur boy, prince (P.); ku~ar prince (Ku.); ku~wa_r, kuma_r unmarried, a caste of Chettris (N.); ku~wa_ro, kuma_ro boy, young bachelor (N.); ku~wa_r, kumar, kamar prince (N.); ko~war prince (A.); ko~ya_r prince (B.); kua~_ra bachelor; kua~_ra_ unmarried (of males)(Or.); kua~ra boy, family title of Ks.atriyas (Or.); ku~wa_r unmarried boy (Bhoj.); ku~ara prince (OAw.); ku~a_r unmarried (OAw.); ku~wa_r unmarried youth, prince; ku~war prince; ku~wa_ra_, kwa_ra_ bachelor (H.); kavara prince (OMarw.); ku~var, ku~ver boy, prince (G.); ku~va_r.d.u~ funeral ceremonies four days after death of an infant (G.); ku~var boy under five years old, prince (M.); komarun obl. pl. boys (OSi.); kumaruva_ child, prince (Si.)(CDIAL 3303). kumaran- young man, youth (Kampara_. Mitilaik. 157); son; Skanda, as son of S'iva (Kantapu. Kat.avul.. 16); kumari perpetual youthhood (Cilap. 10,123); kuma_ra-mat.ai-p-pal.l.i a sub-caste of mat.ai-p-pal.l.i who got their name from their ancestors having been cooks of princes; kuma_ran- Skanda, as son of S'iva (Kantapu. Kuma_ra. 16)(Ta.lex.) 2191.Potter: ko_va a Kur-umba; a potter; kur-umbar; ba_mbar endum ko_var endum kumbar-ar; ba_mbar ene ko_var ene kur-ubar; ba_mbar ene ko_var kumbar-ar (S'abdaman.idarpan.a; Kabbigara Ke_ypid.i; loc. cit. Ka.lex.) kus'ava a potter (Ma.); ko_vara cakram potter's wheel (Ka.); ko_vida skilled, experienced, learned, wise (Ka.Skt.); kor-ava a man of a now settled tribe, who speaks Kannad.a, makes baskets, mats etc., is a musician; kur-ava a wandering tribe of basket-makers, snake-catchers and gypsies (Ta.Ma.); kor-avaji a female of the kor-avas, who commonly is a fortune-teller (Ka.Te.); kur-avaci, kur-atti (Ta.); kor-avajikathe a story about Arjuna disguised as a kor-avaji (Ka.)(Ka.lex.) kur-uba, kur-aba, kur-umba a man of the shepherd caste, a shepherd (who worships maila_la lin:ga and the masan.i; ja_ba_la, aja_ji_va; ba_mba; golla (Ka.); kurupe, kuruma (Te.); kur-umpan- (Ta.); kur-umba (Ma.); kur-uba a stubborn, foolish man (Ka.); kur-umba (Ma.); kur-uba-heggad.e a chief among shepherds (Ka.); kur-uba a potter; kur-ubagitti a kur-uba woman; kur-ubitti, kur-ubati, kur-umbiti id. (Ka.)(Ka.lex.) kuvara a potter; ba_mba (a kur-uba or kur-umba; a potter; fr. ba_n, ba_na = a pile of earthen vessels), kummar-a (Ka.lex.) ko_valan- hero of the epic Cilappatika_ram (Ta.lex.)

Vessel with two rows of scorpions from Nippur, Inanna Temple, level VIII. Baghdad Museum.



kamar = a semi-hinduised caste of blacksmiths; kamari = the work of a blacksmith, the money paid for blacksmith work; nunak ato reakin kamarieda = I do the blacksmith work for so many villages; **kolhe kamar** = a Kolhe blacksmith and iron-smelter; **lohar kamar** = a caste of blacksmiths that live more in conformity with Hindu caste rules (do not eat meat, do not drink beer; rare in the Santal country); rana kamar = the ordinary blacksmith in the country (rana is their caste or tribal name); saloi kamar = a kind of blacksmith; to put teeth on a sickle he gets two seers of paddy; kamarera = the wife of a blacksmith (Santali.lex.)kamar (Desi); karmka_r (H.); ka_ma_r (B.)

kamar kidin = a small species of scorpion; a kind of scolopendre, said to be the same as **mahle kidin** (Santali.lex.)

In later-day sculptural tradition, a lady is shown with a scorpion on her thigh. This can be explained: **era** 'woman'; rebus: 'copper'; **kamar** 'scorpion'; rebus: blacksmith; that is, coppersmith.



Shell inlay from the king's grave at Ur. [V. Gordon Childe, 1929, *The Most Ancient East: the oriental prelude to European prehistory*, London, Kegan Paul, Trench, Trubner and Co. Ltd., After the frontispiece, Plate I]. This is a dramatic demonstration of contacts -- exchange of ideas and goods -- of Sumerian civilization with Bharat and Egypt. Contacts with India are clear from the depiction of the one-horned bull (the so-called 'unicorn') in the third register of the archaic plaque. The jackal brandishing a sistrum and a bear dancing to its tune is also shown on the third register. The bear is surely a native of Armenia or Syria or India. [Sistrum is a musical instrument of ancient Egypt consisting of a metal frame with transverse metal rods which rattled when the instrument was shaken]. The wolf in the second panel has a dagger tucked in the belt. The knife shown on the wolf's belt is similar to the one found at Ur. The bottom panel shows a scorpion-man being offered two vases by an antelope.

Uruk Period; BM 102427; Above: Tethered bull, three dots above back; scorpion, bearded man chases bull. Below: man with bucket watchesn fallen animal (?). Man protects goat from leopard (lion? contest scene?). Probably recut Early Dynastic period, authenticity questioned; Gypsum (worn); D.J.Wiseman, opcit, 1962, Pl. 1d.
(Not illustrated)

BM 102418; Wiseman, opcit, 1962, Pl. 23b; Above: scorpion, goat, bull with lizard (gharial?) on back. Below: goat couchant between goats walking. In field: pot, crescent moon. Jamdat-Nasr-Early Dynastic? Red marble. (Not illustrated)

BM 22962; Wiseman, opcit, 1962, Pl. 22d; Above: Bull-men crouch beside triple-plant on mountain. Vultures on their backs. Hero and bull-man: In field: snake, scorpion. Below: Bulls bow below eagle: Stag and goat. In field: bird. Wiseman, Cylinder Seals, 21. Lazulite. (Not illustrated)

Mitannian seal; ca. 1450-1300 BC; chert; cat. 630; animal row: two antelopes and a lion. In the sky: scorpion, drill hole. (Not illustrated)

The scorpions on the Rehmandheri seal flank what is referred to as a 'frog'. The pictograph may perhaps connote the spread thighs of a person, perhaps intending to denote the female organ. (Not illustrated).

The message can be read as: **bica bari_ kut.hi** = stone ore artisan's (blacksmith's) furnace.

The Sanskritization of Assamese **bica_** , des'i_ **vachi** is: vr.s'cika scorpion (RV); vicchika (Pali); vicchia, vim.chia (Pkt.); bich (Sh.); bichi_ (Ku.); **bica_** (A.); bicha_ (B.Or.); bu_ch (Mth.); bi_chi_ (Bhoj.Aw.H.); vi_chi_, vi~chi_ (G.); ucum (Pas'.); vichu~ (S.); vicchua, vim.chua (Pkt.); vichu~ (L.); bicchu~ (P.); bichu (Or.); bi_chu (Mth.); bicchu~, bi_chu_ (H.); vi_chu (G.); viccu, viccua, vim.cua (Pkt.); byucu (K.); biccu_ (P.); biccu_ (WPah.); vi_cu_ (M.); viccu, vim.cu (Kon.); bacchius_ large hornet (n.)(CDIAL 12081).

The early form is likely to be close to: bica_ (A.); or byucu scorpion (K.); bu_ch (Mth.) bacchiu~ large hornet (N.); if so, there is are substantive words in Mundari and Gujarati for a rebus representation:

bica, bica-diri (Sad. bica_; Or. bici_) stone ore; mer.ed.bica, stones containing iron; tambabica, copper-ore stones; samr.obica, stones containing gold (Mundari.lex.)

vachiya_t a foreign merchant who seeks to make purchase and sales; an agent; vacye adv. Pre. (Skt. madhye, middle] in the center, in the middle; between (G.lex.) cf. bi_c [Hindi vacye] in; inside; between (G.lex.) ?vicchita in phrase balavicchita-ka_rin at Miln 110 is to be read balav' icchitak-ka_rin ' a man strong to do what he likes', i.e. a man of influence (Pali.lex.)

bichwa_ = a type of dagger (H.lex.)

ko_la, ko_lana = elongatedness, elongation; ko_lani = elongated (Te.lex.) [Note the elongated body of a horizontal person shown in the context of zebu bull, scorpion and tagara shrub]. kun.d.lan: = to lie down (Santali.lex.)

kol 'metal, alloy of metals' (Ta.)

> **kandankund.an** (Sad. kandan-kundan) of bipeds, to walk looking lanky; to walk with long strides; kand.an-kond.on, kind.an kond.on, kon.do-kon.do, kond.an kond.an = lean and long-necked, lanky (Mundari.lex.) [Note the lean and long-necked glyph on a seal being trampled by a short-horned bull and horizontally on top of another cylinder seal which also shows tabaerna Montana shrub, zebu bull, scorpion and cactus].
>
> **kanda-kanda** = to divide into small compartments or plots (Mundari.lex.)
>
> **kan.d.** = a furnace, altar (Santali.lex.)

*A pot on top of this person

*A wavy line (snake?) bracketing this person and the scorpion

kan:g = brazier, fireplace (K.)(IL 1332) Portable brazier; **ka~_guru, ka~_gar** (Ka.) whence, large brazier = **kan:gar** (K.) *ka~_gri_* small portable brazier (H.)(CDIAL 3006).

kavar-u = dice, gambling (Ta.); kavar-u = die (Ma.)(DEDR 1329). [Note the glyph of dotted circle; also shown on ivory objects].

kavar-ai = Balija caste among the Telugus (Ta.); *kavar-a* = a tribe trading with glass bracelets, baskets etc. (Ma.); *gavariga* = a man of the basket and matmaker caste (Ka.)(DEDR 1330)

*kacara_* dealer in glass bangles (IL 3012) *kha~_ca_* hen-coop B.H.P).); kha~_c basket for carrying birds (such as quails)(N.); **kha~_ca_** large basket of tamarisk twigs (Mth.); kha~_ci_ small basket of tamarisk twigs (Mth.)

urseal11Seal; UPenn; a scorpion and an elipse [an eye (?)]; U. 16397; Gadd, PBA 18 (1932), pp. 10
11, pl. II, no. 11 [Note: Is the 'eye' an oval representation of a bun ingot made from bica_, sand ore?] The oval or eye sign is a *kat.akam*, a bangle; can be seen as a hieroglyph, a phonetic determinant of the substantive pictograph of the field, the scorpion, *kat.kom*. Or, does the 'oval' glyph connote a bun ingot? "The device is notable, a scorpion and an eye (?). The latter (or at least a similar elliptical character) appears in the script both alone and with a number of modifications…Mackay suggests (M.II, p. 392) that the fairly common character (ibid., pl. cxxviii, no. cccLI) 'may be a scorpion'..." (C.J. Gadd, Seals of Ancient Indian Style Found at Ur', in: G.L. Possehl, ed., 1979, *Ancient Cities of the Indus*, Delhi, Vikas Publishing House, p. 119).

Rahman-dheri01A and B Rhd1: Two scorpions flanking a 'frog?' [?**kamat.ha**] and a sign **T** with two holes on the top, possibly to be tied on a string [Together with *bica_*, sand ore, the sign, 'T' may connote another ore, perhaps tin].

Rectangular stamp seal of dark steatite; U. 11181; B.IM. 7854; ht. 1.4, width 1.1 cm.; Woolley, Ur Excavations, IV (1956), p. 50, n.3. Scorpion.

2045 Pict-40: Frog.

If the early form is: vat.t.u_ha, the possible homonyms are:

vartaloha a kind of brass (Skt.); vat.t.alo_ha a partic. kind of metal (Pali); valt.o_a_ metal pitcher (L.); valt.oh, balt.oh (P.); bat.lohi_, bat.loi brass drinking and cooking vessel (H.); vat.loi (G.)(CDIAL 11357). Bar stone (Gypsy); bar. Stone (Seur.Gypsy); bot. Stone (D.);; wa_t. (Ash.Wg.); wot. (Kt.); bo_t. (Dm.); bat. (Tir.Wot.); wa_t. (Gmb.); wa_t. stone, millstone (Gaw.); bat stone (Kal.); bort (Kho.)(CDIAL 11348).

vat.hu_ha_, vat.t.hu_ha scorpion (L.); vi_cd.a_ large scorpion (M.); bachiu_ large hornet (N.); vr.s'cika scorpion (RV.)(CDIAL 12081).

Image: turned; circle: vr.tta turned (RV.); rounded (S'Br.); vat.t.a round; circle (Pali.); round (Pkt.)(CDIAL 12069). vat.t.am circle, circular form, ring-like shape (Tol. Col. 402, Urai.); potter's wheel; wheel of a cart; revolution; varut.t.am egg (Na_mati_pa. 255); prob. vr.tta (Skt.) Image: rim of a wheel: vat.t.ai felloe, rim of a wheel (Cilap. 29, Uraippa_t.t.umat.ai); car, chariot; cf. vat.t.am circle, circular form, ring-like shape (Tol. Col. 402, Urai.); vat.t.a-p-po_tikai a circular piece placed under the capital of a pillar (W.)(Ta.lex.)

A distinction is made among ores: (1) stone ores, **bica**; and (2) sand containing ores, **bali.**

Smelting what? Stone ores. Rebus, scorpion: The early form is likely to be close to: *bica_* (A.); or *byucu* scorpion (K.); bu_ch (Mth.) bacchiu~ large hornet (N.); if so, there are substantive words in Mundari and Gujarati for a rebus representation:

bica, bica-diri (Sad. bica_; Or. bici_) stone ore; mer.ed.bica, stones containing iron; **tambabica**, copper-ore stones (Mundari.lex.) dhiri = stone (Santali.lex.)

The duplication of the pictorial motifs of the scorpion and the antelope on the Rehmandari seal may be related to the rebus homonym: bar, barea = two. The substantives relate to: bari_ = blacksmith; baria~o = a peddler or merchant.

bari_ = blacksmith, artisan (Ash.)(CDIAL 9464).

ba_ru = betel (B.)(CDIAL 9213; cf. ta_mbu_la).

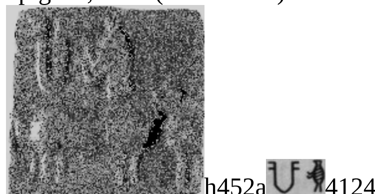
baru_, baro = a tall grass or reed (H.); baru = a reed (G.)(CDIAL 9151). Cf. the bush in front of the hare on copper tablets.

baria~o, ba~r.ia~ = a shopkeeper, a peddler who sells salt, spices, tobacco; baria~u = rich, great, powerful, arrogant (Santali.lex.) van.ika (Skt. Van.ik) a trader, a merchant; a grocer; a grain-vendor (G.lex.) va_n.iyo (Dh.Des. va_n.iyaya_ fr. Skt. va_n.iya-ka_ traders) = a Bania, an individual of a particular caste in Gujarat, the members of which are generally traders, shop-keepers, or money-lenders; a trader, a merchant; a dealer in grain (G.lex.) van.aja_r = a caravan; a camp or company of traveling merchants; a number of bullocks laden with corn, salt and other merchandise; van.ajaro = a traveling merchant who carries for sale goods in a caravan (G.lex.) van.ij = trader (RV); trade (Gaut.); van.i = trader (Pkt.); van.ic, va~r.ic = to sell (Ash.); vra_le (Kt.)(CDIAL 12230)

Rebus images (homonyms)

potam bele = *epsilon lyrae*, two small stars very close to each other, near Vega, in the constellation Lyra (Santali.lex.)

potam = a pigeon, dove (Santali.lex.)


h452a 4124

pot.ea gar.ai = a species of fish; **pot.ha hako** = a species of fish; the fry of this fish are known as put.hi hako (Santali.lex.)

Substantive: **pota** [Hem. Des. potti_ = Skt. ka_cah 'glass'] beads of glass (G.)

pota a boat; a raft (G.Skt.) po_tram a boat, ship (Skt.lex.) po_ta-va_kan- boatman (Can.. Aka.); po_tam vessel, ship, boat (po_tan:ko n.et.un tan-ip poruvil ku_mpot.u : Kampara_. Pal.l.ipat.ai. 68)(Ta.lex.)
pota calf of leg (Pe.); pata id. (Mand.Ku.)(DEDR 4513)
pot upper part of back; pottel back; adv. Behind (Pa.); pot., pot.tl, pot.t.u back (Ga.)(DEDR 4514).

pota adj. 'six' (used in secret conversation by merchants)(G.)

potam cupi t.en:goc = a small sized axe of a peculiar shape; cupi = tail of bird or fish, rudder of boat; hence, the reference is to an axe shaped like the tail of a pigeon (Santali.lex.) **t.engra hako** = a species of river fish (Santali.lex.)



Homonym: **tengo, ten:gon** = to stand, to stand still, to assume an upright position (Santali.lex.)

Spoked-wheel sign: has 203 occurrences in the corpus of texts (Mahadevan).

phut.ia = the wooden rim of a cart wheel; hal = the iron tyre of a wheel (Santali) put.hiya_~ = pl. the felloes of a wheel (G.) put.t.hi = a section of the felloe of a wheel (P.lex.) putia = the centre piece of a solid cart wheel (Santali); pat.i = each of the outside planks of the solid wheel of a sagar. (Santali)

2866a.Cart; s'akat.a cart (R. S'a_n:khS'r.); s'akat.i_ (RV.); s'akat.ika adj. (Pa_n..gan.a); s'akat.ika_ small cart (Skt.); sakat.a cart, waggon, cartload (Pali); ya_l.a cart (Si.); hagor[u] cart (K.); sagr.a_ bullock-cart (B.); sagar.a (Or.); saggar.ia_ driver of a cart (Or.); sa_gar., saggar.a_ smaller cart (Bi.); sagar. (Mth.); saggar., sagar. cart; sagr.i_ small cart (H.); chakir.o cart (S.); chakr.a_, chikr.a_ large two-wheeled bullock-cart (P.); chakr.a_, s'akr.a_ cart (B.); chakar.a_ large cart (Bi.); chakkar., chakr.i_ (Mth.); chakr.a hackney carriage (Or.); chakr.a_ two-wheeled bullock-cart (H.); chakr.u~, chakr.o cart (G.); sa_kd.a_ the box of a load-cart (M.)(CDIAL 12236). Wheel; cart: ca_ka_t.u < s'akat.a cart, carriage (Kur-al., 476); cart wheel (accut.ai-c ca_ka_t. t.a_ram: Pur-ana_. 256); cakat.a-k-ka_l cart-wheel, carriage-wheel (Na_lat.i. 2); cakat.a-p-por-i a machine in the shape of a wheel, used as a weapon of defence (Cilap. 15,216, Urai.); cakat.am cart, wheeled conveyance drawn by cattle, carriage, chariot (Ci_vaka. 363); car (Kantapu. Ka_ppu. 1); wheel; cakat.u cart (Periyapu. Tiruna_. 6); id. (Ma.); cakat.ai id. (Pur-ana_. 60, 8, Urai.)(Ta.) (Ta.lex.) cakad.a_, cakkad.i, cakkad.a_ (Tadbhava of s'akat.a) a cart; a travelling cart (Ka.); chakad.a_ (M.); cekad.a_ (Te.); cakat.am, cakat.u (Ta.); cagad.u, ca_d.u (Ma.)(Ka.lex.) cf. tagori the potter's wheel (Tu.); tikiri circle, circular form, wheel, potter's wheel, the discus weapon, chariot, car (Ta.); tayrgan. potter's wheel (Ko.); tiguri, tigari, tiguru a wheel, esp. a potter's wheel (Ka.)(DEDR 3201). **szekér** = cart, wagon (Mg - According to MÉK, possibly of F-U, Iranian or Dravidian origin) // [? gigir2 = chariot; wagon; wheels (Su)] // [? *sakar (Middle Iranian)]Ural-Altaic etymological word-list, Part 7 (R-Sz) - Peter D. Chong (1998 VI.) http://www2.4dcomm.com/millenia/uaetym7x.html A solid cart wheel; cart with solid wheels: sagar. a cart with solid wheels; to cart; sagar. gad.i a cart with 2-spoked wheels; sagar. jhagar. driving a cart; sagar.ia a carter; sagar. cak a cart wheel; sagar solid cart wheel (Santali.lex.) sagar.i, sagir.i, sagr.i a rudimentary cart, called sometimes a block-wheeled cart because its two wheels (ca_ka) are spokeless and made of three blocks of wood (cf. Pl.XV,(1)(Mu.); sagar. (Sadani. Oraon); ... used to transport bales, sheaves of reaped paddy, straw, firewood and timber (Mu.lex.) sakat.a cart; cakkamagga cart-rut (Pali)(Pali.lex.)

h992 Bangle fragment

h598A h598D

5073 [The ligature in-fixed on the last sign of the second line may be Sign 54?]

h506 4097

Kalibangan016 8044

m0288 2518

m1264a

1405 m0390

1444 m0137 2261

m1109 1327Zebu

m0662 1061

m0006a

2422 m0225 2199

m1103colour.

1337

3080 m1105

m0256

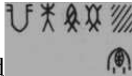
1332 m0633 1016

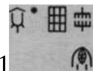
m0649 2530

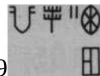
m0998 2176

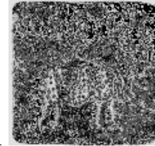
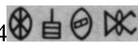
m1088 2268 Rangpur

 Pirak24  m0272 Goat-antelope with horns bending backwards and neck turned backwards  2554 [Is it a four-spoked wheel?]

 m1005Bovid  1001

 m1101 

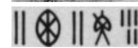
2431  m1139 

1341  m1134 

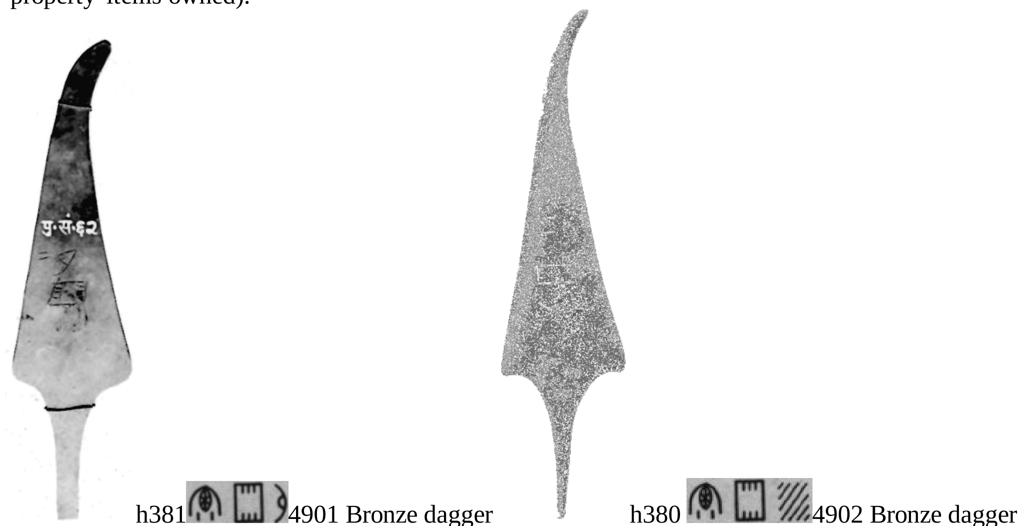
2651  Surkotada 4  9094 

Surkotada 7  m1066  1547

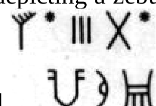
 Chanhudaro30

 6111The sign occurs at Surkotada, another fortified settlement close to Dholavira.

Sign 393 occurs on two copper 'daggers' from Harappa (the inscriptions -- 4901 and 4902 -- are the lists of 'property' items owned).

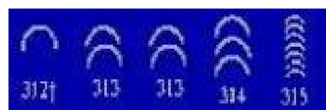


h381 4901 Bronze dagger h380 4902 Bronze dagger

The first sign begins with Sign 393 and the third sign [**)** ligatured with an 'eye-ball'] is the same as that shown on Chanhudaro inscription 6306 incised on both sides of a bronze tool; the inscription includes a graphemic **)** sign without the 'eye-ball'; two other examples are on m257a seal, depicting a zebu bull as a field symbol and on inscription which is incised on a Harappan bronze weapon or tool  5601

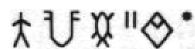
The X on line 1 (top line) and the first sign of line 2 (bottom line) is relatable to the signs incised on two tin ingots (each weighing about 11 kgs.) found from an ancient (ca. 1400 BC?) ship-wreck at Haifa, Israel -- the sign apparently connotes the nature of the 'alloy or metal' used. The first sign of line 2, inscription 5601 (Sign 182) may also be a variant an animal pictograph, the wild goat, **tagara or ba~ont.ia**, a species of deer; rebus: **bat.i** = oven (Santali.lex.) The ligatures Sign 184 may be a specific bat.i = can.d.bol bat.i = tail + furnace = refined silver furnace.





Signs 312 to 315

The inverted U sign also occurs on one side of Kalibangan k121A and B inscribed bronze rod

Kalibangan121A, B  8302

See Chanhudaro bronze tool: Inscription 6306 incised on two sides c040 a,b; the cross-hatched oval sign follows the sign three inverted U-s:

 Chanhudaro40A  Chanhudaro40B  6306 The first line of this incription 6306 (which includes the three inverted U signs ligatured one on top of another) is incised on one side of copper tool.



Signs 313-317, 393+variants

kumpat.i = ban:gala = an:ga_ra s'akat.i_ = a chafing dish, a portable stove, a goldsmith's portable furnace (Te.lex.)

kumme = a dent, a notch, depression (Te.lex.)

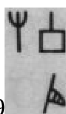
2134.Image: dome, arch: gumat.a, gumut.a, gumuri, gummat.a, gummut.a a copula or dome (Ka.); ghumat.a (M.); gummat.a, gummad a dome; a paper lantern; a fire-baloon (H.Te.); **kummat.t.a** arch, vault, arched roof, pinnacle of a pagoda; globe, lantern made of paper (Ta.)(Ka.lex.); gumat.a a high, huge figure of stone, representing a Jaina saint (Ka.); gummat.e id. (Tu.)(Ka.lex.) kumbutalaya place of an elephant's frontal globes (Si.)(CDIAL 3314). kot.ko a mound, raised ground (Santali.lex.) Image: capital of a pillar: kut.a-ta_t.i capital of a pillar (Ci_vaka. 593, Urai); kut.am globe, ball, sphericity (Ta.lex.) 2135. Image: arch: komd.ed, komd.on with sa_n, curved, arched fire-wood (Mu.); gumbaz, gumbad an arch, a vault (Pers.)(Mu.lex.) 2133.Images: hump-backed; protuberance: kubja-kira_ta a hump-backed person and a dwarf (Skt.lex.) kumpam upper part of the back between the shoulders (Ta.lex.) kubhra hump-backed bull (Sat. xix.1); kumba hump, the portion that rises above; kubja hump-backed (VS. xxx.101) (Vedic.lex.) kubhra the humped buffalo (Skt.); kubd.a_ hunchback (M.)(Bloch, p. 317). kubja a hump on the back; kubja_ a young female servant of Kamsa, said to be deformed in three parts of her body (Skt.lex.) kat.wic bent, hunch-backed, applied to females; kat.wic mara aimai a hunch-backed jade; kat.be kot.be crooked, curved, bent; kat.buc round shouldered, hunch-backed, hanging the head; kat.ac kut.uc uneven, crooked; kat.bac kut.buc irregular, crooked (Santali.lex.) ku_vara, ku_bara a hump-backed man (Skt.lex.) kubi gai a cow with horns bent forwards; kuba crooked, bent; kuba d.an:gra an ox having horns bent forwards; kubja crooked, bent, curved; kubra, kubr.a, kubr.an. crooked, bent (Santali.lex.) ku_rpara the elbow, the knee (Skt.lex.) Image: humpbacked: kob^{u} hump on back (K.); kob^{u} humpbacked (K.); kubu hump (S.); kub bend, curve, distortion (L.); kubba_ humpbacked (L.); kubb hump on back (P.WPah.); kub (H.); kubro humpbacked, bent with age (N.); kubar. hump on back (H.); kubr.u~ (G.); kubad. (M.)(CDIAL 3301). kumba thick end (of a bone or club)(TS.); kumtale shoulder (Wg.); kum (N.)(CDIAL 3307). ku_ high mountain (Pr.); ku_ hump (Kt.)(CDIAL 3521). Crooked-armed: kumpa crooked-armed (Skt.); ko~pa_, kopa_ (B.)(CDIAL 3306). ku_bar. a crooked beam (Bi.)(CDIAL 3301). Images: knob, stud; protuberance: guburu protuberance (Te.); gubbi id., knob (Ka.); guba_ru swelling (Ka.); kumir.. knob, stud, pommel (Ta.); pommel, knob (Ma.)(DEDR 1743). kuppi ferrule (e.g. on scabbard, horn of ox)(Ta.); brass knob on tip of bullock's horn (Ma.); gubbi, gubbe stud, ornamental knob, button (Tu.); gubaka knob, boss, stud; gubba id., protuberance, woman's breast; guburu protuberance (Te.); kuppe knob (Te.); koparam hump of bullock (Kond.a); gomon. hump of ox (Pe.); guper. id. (Mand.)(DEDR 1743). gu'u hump of ox (Kuwi); qope heap, pile (Malt.)(DEDR 1731a). Image: upper part of the back between the shoulders: kub back, behind (To.); kumpam upper part of the back between the shoulders (Ta.); kumbi buttocks (Ma.); kipc id. (?Ko.)(DEDR 1747). kappu shoulder (Tiv. Periya_r... 3,1,5)(Ta.lex.) cf. cumal shoulder (Ma.); cuval nape of the neck, upper part of the neck (Ta.)(DEDR 2696). Bullock's hump: kumir.. hump of an ox, pommel (Ta.); pommel (Ma.); guper. hum of ox (Mand..); koparam hump of bullock (Kond.a); gomon. hump of ox (Pe.)(DEDR 1743). gu_mbat.u bullock's hump (S.); gumbat., gummat. bullock's hump (L.)(CDIAL 4217). gu'u hump of cow (Kuwi)(DEDR 1927). ku_u the hump on a bull's shoulders (Ma.); kunja_r.i hump of bullock (Go.); koonjaree id. (Go.); gunzam, guzam shoulder (Kond.a)(DEDR 1643). khu~_dh hump on the back (G.); khu~_dhu~ hump-backed (G.)(CDIAL 3902). Humpbacked; dwarfish; bent: khummia bent (Pkt.); khumle, khomle id. (N.); khumre decrepit, old (N.)(CDIAL 3905). khujja humpbacked, small, inferior (Pali); khujja, khujjaya, khujjiya humpbacked, bent (Pkt.); khuja_ dwarfish (M.); kuda humpbacked (Si.)(CDIAL 3903). khubar. hump on back, knuckle, joint (M.)(CDIAL 3904). kujja humpbacked, dwarfish (Pali.Pkt.); kuju hunchback (Sh.); ku~j hump on back (A.); hump (B.); kuja_, ku~ja_ humpbacked (B.); kuja hump (Or.); kuja_ humpbacked (Or.); kuja hunchback (OG.); ko~ja_, ko~jha_ dwarfish (M.); kubja humpbacked (VS.)(CDIAL 3300).

kabua = bent, curved, arch, arched; kabja kubja = crooked; kabjun = bent, curved, stooping (Santali.lex.) Or, does it represent a pavilion, an awning, a tent?

ak = a bow (Santali.lex.) [Could this be represented by the arch ligatured on Sign 393? The inverted U incised on weapons, could be erka, arka, copper (ingots)?]

ba~ont.ia, a species of deer; a homonym is: **ba_vut.a_** = flag, a banner, a standard (Te.); **ba_vat.a_** = flag (H.); ba_vut.e, ba_vat.a, ba_vat.i, ba_vat.e (Ka.M.)

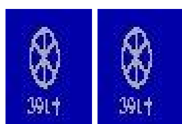
See the glyph in front of the rhinoceros on a seal:

Kalibangan0398011  m06692686

ko_d.i = a kind of flag, an image of garud.a, basava, or other demi-god set upon a long post before a temple; cf. gud.i, temple (Ka.lex.) [Note the flag in front of a procession on an inscribed tablet]. kot.i = a flag (Ta.lex.) **ko_d.e** du_d.a = young bull (Te.lex.)

Sailing boat ko_t.ya, **ko_t.iya** = sailing vessel (Tu.), ko_t.t.iya = a sea-boat (Ceylon)(Ma.)

Rebus representation of phut.ia (felloe of wheel), 'copper ingot' explains why this sign also is inscribed on weapons -- inscribed copper axes. **san:gha_ta phut.ia** = **alloyed** copper (a pair of felloes); san:gha_ta = composite material (Skt.)



This sign pair occurs on Dholavira sign-board; thus, the sign board can be seen as an advertisement board announcing the products made in the metal-smithy of the fort.

Spindle whorls





Spindle-whorls have been found in many sites of the Sarasvati Sindhu Civilization attesting to the widespread practice of spinning and weaving. [Plates CLVI and CLVII, *MIC*]. "Spindle-whorls are found in such numbers at Mohenjo-daro that the art of weaving must have been practised extensively. We know for a certainty that cotton was one of the materials used for this purpose, and there can be no doubt that wool was also employed as the sheep was well known, being one of the many animals portrayed in clay... Spindle-whorls were mostly made of pottery, but there are some shell and many of faience...The spindle-whorls made of shell (Pl. CLVI, 8-10) are somewhat rare. They range in size from 1.5 inches to 1.85 inches in diameter and the single hole in the centre averages 0.18 inch in diameter...Faience whorls... Pl. CLVII No. 36, 40, 41, 47...Nos. 41 and 47 wer evidently made in the same mould... Small faience spindle-whorls very similar to those just described have been found in pre-Sargonic graves at Kish. One found in a grave of that period was mounted on a copper shaft." (John Marshalkl, ed., *Mohenjo-daro and the Indus Civilization,* London, 1931, pp. 468-470).

R.gveda uses **taks.** to denote a variety of creative skills:

> composing hymns and praises (RV 5.73.1; 6.32.1; 9.97.22; 10.80.7);
> framing oc chariots (RV 1.111.1; 4.33.8; 7.32.20; 8.64.5);
> making armour for deva-s (RV 4.34.9);
> carving of a yu_pa (RV 1.162.6; 3.8.6);
> wooden vessels (RV 10.53.10; 101.10);
> fashioning of vajra (RV 1.32.3; 52.7; 61.6; 121.3; 10.48.3; 99.1).

Rebus: *takoe* = to spin on the charkha or spinning wheel; sutamko takoekeda = they spun the thread; takkoe kanae = she is spinning (Santali).

Avestan refers to Ahura-Mazda as the fashioner of the earth, as **Geus-tas.a_** (lit. carpenter of the Mother-Earth *Yasna* 29.1; 31.11; 44.6; 51.7). Homer refers to **tekton** as a worker in wood, a carpenter or a joiner (Iliad 5.59; 6.315; 13.390; Odyssey 9.126; 17.384; 21.430).

t.an:ka leg (Pkt.); t.an:ga (S.); t.a_n:ka leg, thigh (Or.); t.a_n:ku thigh, buttock (Or.)(CDIAL 5428).

t.aku = the spinning axle of a spinning wheel, on which the thread is wound as it is spun (Santali.lex.)

Ancient Phoenician Spindle Whorl





"I recently purchased a stone spindle whorl from a dealer who dates it to Phoenicia somewhere between 1200-800 B.C. I was interested in creating a working tool with it. Here are some shots of what I rigged up.
"Whorl: smooth black stone, about 1 inch in diameter. Weight .5 oz (?)
Shaft: 3/16-inch birch dowel, about 6 inches long
Hook: steel wire cut from a safety pin and bent into shape.

The shaft was wound with layers of sewing thread until the whorl could sit securely with a pressure fit. I left the sharp safety-pin point on the end of the hook, which made it easy to wedge into the shaft.

"This little spindle works wonderfully. It's extremely fast (speeds comparable to a takli), spins for a long time, and produces thread-sized yarn with little effort. I've experimented and found that so far, it does best with fine fibers such as silk and fine Merino. If the wool is too coarse the spindle starts to backspin too quickly. I have not tried it with linen yet. " http://people.ne.mediaone.net/benfatto/phoenicia/index.html

Worker in wood, metal and leather: spindle, fish with six curls and tiger stool



Elamite lady(?) spinner, 3000 years BP and the language of the civilization in Elam Musee du Louvre. Paris. An elegantly coiffed, exquisitely-dressed and well fanned Elamite sits on a lion footed stool winding thread on a spindle. This five-inch fragment is dated 8th century BC. It was molded and carved from a mix of bitumen, ground calcite, and quartz. The Elamites used bitumen, a naturally occurring mineral pitch, or asphalt, for vessels, sculpture, glue, caulking, and waterproofing.

http://www.oznet.net/iran/elamspin.htm

A lady is **era** (Santali); rebus: **era, ara** = copper (Ka.) Wooden stool is **gan.d.o** 'a small piece of wood from 6 to 12 inches long and 3 or 4 high, used as a stool to sit on'(Santali) Rebus: **khan.d.a** = instrument, implement, weapon (Santali) **kan.d.** 'altar, furnace' (Santali); Rebus: **gan.d.a** = hero (Ka.) cf. **takta** = a plank, a board (Santali)

The worker makes implements and weapons of wood and iron! He has a furnace for working with copper and (other) metals!

The stool on which the lovely Elamite lady sits has the legs of a lion or panther; the fish is also placed on a similar stool in front her.

The glyphs are a representation of a worker in wood and metal and also leather. He is **taks.aka**.

bad.hi = a caste who work both in wood and iron (Santali) **bad.hoe, bad.horia** = a carpenter, expert in working in wood (Santali) **badha** = wooden sandals (Santali) **badhor.** = knotty; **noa kat. do ad.i badhor.a** = this wood is cross grained (Santali)

badhor., badhor. hako = a species of fish with many bones (Santali) Homonym glyph: bad.hia = a castrated boar, a hog (Santali)

ca_mara = fly whisk (Skt.) Rebus: **camar, chamar** = a semi-aboriginal caste who deal in hides and make shoes (Santali) metath. **carma** = skin (Skt.)

The fish is ornamented with six circles arching around. **pot.ha hako** = a species of fish; rebus: *pota* = six (G.)

potam tengoc, 'a type of small axe'.

Alternative:
khat.a 'six' (G.)
kata = a pit saw (Santali)
kat.a kat.i = cutting; to slash, kill (Santali)
kat, kaitha = the hindu caste of kayasth; **kat. bad.hoe** a worker in wood, a carpenter (Santali).

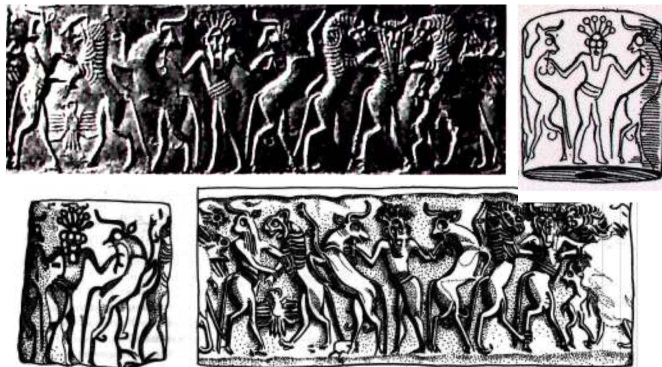
tan:ga = a large axe; ten:goc = a small axe (Santali)

t.an:k = a hatchet (Skt.); t.a_n:k [Hem. Des. t.an:ka_ = Skt. chinnam cut up] a nib; a stel nib of a pen (G.lex.) **t.an:ka** spade, hoe, chisel (R.); t.an:ga sword, spade (Skt.); t.an:ka stone mason's chisel (Pali); t.am.ka stone-chisel, sword (Pkt.); t.ho_ axe (Wot.); t.hon: battle-axe (Bshk.); tanger axe (Tor.); t.ho_n:gi (Phal.); t.onguru a kind of hoe (k.); t.a_~n:gi adze (N.); t.a_~ki chisel (H.); t.a~_k pen nib (G..H.); t.a_ki_ chisel (H.); t.a_n:gi stone chisel (A.); t.a_n:g, t.a_n:gi spade, axe (B.); t.a_n:gi battle-axe (Or.); t.a~_n:ga_ adze (Bi.); t.a_n:I axe (Bhoj.); t.a_~gi_ hatchet (H.)(CDIAL 5427). t.an:kita-man~ca a stone (i.e. chiseled) platform (Pali); t.a~_kvu~ to chisel (G.); t.a~_kn.e~ (M.)(CDIAL 5433). t.an:kas'a_la_ mint (Skt.)(CDIAl 5434).

taks.an.i = a carpenter's axe; **taks.akud.u** = a carpenter; name of one of the kings of the na_ga or serpents of pa_ta_l.a (Te.lex.)

If the spinner connotes **takoe** 'carpenter' (**taks.aka**), the fish in front of the spinner placed majestically on a stool ligatured with tiger's legs may connote: **hako** 'axe'; **kol** (tiger, rebus: metal). Cf. **ten:gra hako** = a species of rive fish (Santali)

Six locks of hair, weaver's beam, toggle, a nail pointed at both ends



From the Early Dynastic period onwards the scene usually comprises a man fighting with one or two bulls, and a bull-man fighting with one or two lions....North-west India of the third millennium BCE can be considered as an integral, if marginal, part of the West Asian cultural area." (Parpola, A., New correspondences between Harappan and Near Eastern glyptic art, in: Bridget Allchin (ed.), *South Asian Archaeology, 1981*, Cambridge, Cambridge University Press, 1984). Cylinder seal impression; scene representing mythological beings, bullls and lions in conflict. A hero with six locks of hair checks two bulls. An Early Dynastic II/III cylinder seal from Fara (BM 89538), c. 2650 BCE. (after Mallowan, 1961: 75, no.34).

The six locks of hair of the woman may connote:

khat.a 'six' (G.)
kata = a pit saw (Santali)
kat.a kat.i = cutting; to slash, kill (Santali)
kat, kaitha = the hindu caste of kayasth; **kat. bad.hoe** a worker in wood, a carpenter (Santali).

Era = woman (Santali); era, ara = copper (Ka.).

The woman with six lockf of hair is thus a ligatured
rebus for: a worker in wood and metal, **kat. bad.hoe.**

Alternative: **pota** 'six' (G.); hence, **potam tengoc**, 'a type of small axe'.

potr. = priest participating in soma processing (RV)

tuli, tuliau = rich, well-to-do, to rise in social position; tuliau hor. kanae = he is a rich man (Santali.lex.)

tura_, tura_yi = a plume, a crest; a head ornament of the shape of a feather; a nosegay (Te.lex.) **tuila, tuili** a lock of hair left on the crown, having a lock of hair on the crown, slim, lanky (Santali.lex.) cf. tulna_, tulya = equality, likeness; match, comparison, resemblance (G.lex.)

turui = six (Santali.lex.) turyamu = fourth, a fourth part (Te.lex.)

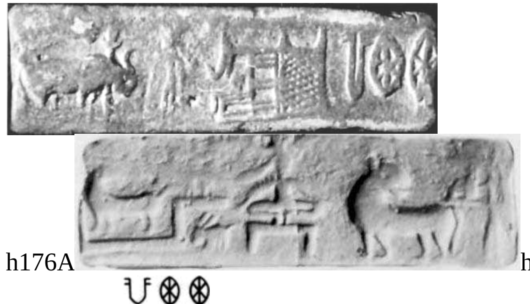
turi_, tura_yi, tu_ra [Skt. tu_rya] = a trumpet (G.); tu_ryamu = a brass wind instrument; a swee-tongued bugle trumpet (Te.lex.)
turi_ = a toggle; a nail pointed at both ends; tura_yi = a weaver's beam; a toggle (G.lex.) tur = the roller on which the cloth is rolled by the weaver as he weaves (Santali.lex.)

turi_ = a horse (G.lex.)



An Early Dynastic II (circa 14th century BCE) votive plaque from the Inanna temple at Nippur VIII. "It has something very

Harappan about it also in the lower part depicting two 'unicorn' bulls around a tree. The six dots around the head of the Harappan hero, clearly visible in one seal (Mohenjodaro, DK 11794; cf. Mackay, 1937: II, pl. 84:75) may be compared to the six locks of hair characteristic of the Mesopotamian hero from Jemdet Nasr to Akkadian times (cf. Calmeyer, 1957-71: 373). Lower register shows two one-horned bulls flanking a tree (?). A person is holding back two contesting hyenas. [After James Pritchard, 1969, *The ancient near East in pictures, relating to the Old Testament*, Princeton, 356, no. 646; Gibson, M., 1977, Indus seal from Nippur, *Man and Environment* I: 67; Iraq Museum, Baghdad].

h176A  h

176bb 4303 Tablet in bas-relief h176a Person standing at the center between a two-tiered structure at R., and a short-horned bull (bison) standing near a trident-headed post (or holding a rimless pot on his left hand) at L. h176b From R.—a tiger (?); a seated, pig-tailed person on a platform; flanked on either side by a person seated on a tree with a tiger, below, looking back. A hare (or goat?) is seen near the platform.

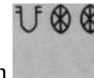
kand.o seal, stool (Malt.); **kan.d.o_** a stool (Kur.)(DEDR 1179).

Is the two-tiered structure a *kuruju*?

> Glyph: *kuruju* framework of bamboo slats covered with paper or cloth or leaves, used to put idols in, or by the bride and bridegroom to sit in (Ka.); *kuruji, gurji* a temporary halting place for idols, decorated with leaves, flags; a temporary shed covered with awning for offering oblations to the manes of deceases s'u_dras (Tu.); *gurykat.* funeral car, the bed on which the corpse is placed under the tail, storied framework (Ko.)(DEDR 1786).

kha_ti_ member of a caste of wheelwrights (H.); **ks.attr.-** carver, distributor (RV.)(CDIAL 3647). **kat, kaitha** = the Hindu caste of Kayasth; **kat. bad.hoe** = a worker in wood, a carpenter (Santali) **katkianari** = soldiers (Kuwi); katk- = to cut with axe (Nk.)

ka_t.hi_ a stick, a staff; five-cubits; five hand-breadths (G.) **ka_s.t.ha** wood (Skt.) **ka_t.hiyo** the wooden frame of a wagon (used in Ba_baria_wa_d)(G.)

Reading epigraph  4303:

There is a seal which combines the features of a one-horned bull and a rhinoceros (boar):

vara_ha metath**. va_kar** or **va_har.** May explain this ligatured animal on Seal m1135.

badhor, badhor.ia = crooked, cross grained, knotty (Santali.lex.)

vardhaka, 'carpenter, mason'

What could have been the early phonetic form of words connoting, 'artisan' or workers in stone, wood and metal (ores)? Were there distinct words connoting a differentiation of functions among, say, a wood-worker, a stone-worker and a metal-worker?

bad.dha_ = pl. stumps of stalks of the last harvest standing ina field (G.lex.) vad.lu = unhusked rice, paddy (Te.lex.) bad = thid class rice land; bad hor.o = rice grown on third class land (Santali.lex.) ba_t.u = pl. stalks of corn with their ears; ban.t.i_ = a kind of corn (G.lex.) buda = stalk, stock, root, clump; mit buda khonbo hec akana = we all come from the one stock (Santali.lex.) vad.d.h = ears of corn remaining in a field after sheaves have been removed (L.); vad.d.h, bad.d.h = a cut in a piece of wood, chip,

stubble of grain (wheat, maize etc.); vad.d.ha_, bad.d.ha_ = cut, mark (P.); va_d.h = cut, wound, reaping a field (G.)(CDIAL 11372). bu~t.ha_ = reduced to a stump (M.); bu~t.han. = stump, stub (M.)(CDIAL 9268).

There is another semantic stream, **vad.d.e** (Telugu), **vad.d.haki** (Pkt.), connoting, respectively, a digger of tanks (perhaps the same group of people who had the competence to create a rock-cut reservoir in Dholavira) and carpenter, mason.

Substantive: *bad.hoe* 'a carpenter, worker in wood'; *badhoria* 'expert in working in wood'(Santali) **vad.d.e** = the tank-diggers' caste; of the country of Oriya; vad.d.eva_d.u = a man of the tank-digger's caste; a native of Oriya; vad.d.emu = Oriya language; vad.la, vad.ramu, vad.d.ran:gamu = carpentry, joinery; vad.langi, vad.ran:gi, vad.lava_d.u = a carpenter, a joiner; vad.lan:gipit.t.a = a wood-pecker (a bird); vad.lata = a woman of the carpenter caste or class (Te.lex.) bad.aga = a servant; Tbh of vat.uka? (boy) (Ka.lex.) bad.agi, bad.a_yi, bad.iga, bad.ige, bad.igya_, bad.d.agi Tbh. of vardhaki = a carpenter (Ka.; bad.agitana = carpentry (Ka.lex.)

Woman with six locks of hair subduing two tigers standing up

ten:goc = standing (Santali) ten:go, ten:gon = to stand, to stand still, to assume an upright or perpendicular position, to raise to an upright position (Santali)

ten:goc = a small axe; t.an:ga = a large axe; ten:gen = to kill for sacrifice by cutting off the head with a knife (Santali)

era = female (Santali); rebus: **era, ara** = copper (Ka.).

On seal m0308, the woman is also shown with one left-eye:

d.a_kannu = the left eye (Te.lex.)

d.a_kini, d.a_kin.i = a kind of female demon attending Ka_l.i (Ka.lex.) d.a_kan., d.a_kan.i_ [Skt. d.a_kini_] a witch; a sorceress; a monstrous woman; an old hag; d.a_kan.um, d.a_kiyum adj. Wicked; monstrous; horrible (G.lex.) d.a_gin.i_ = Pkt. Form of d.a_kini_; cf. d.a_kini_ka in Pa_n. 4.2.51, Pat. (Skt.lex.)

Substantive: **d.a_kin.i, d.a_kini, d.a_hin.i** = the sword of a female demon (Ka.lex.) **darkha_n.** = adze; taks.an.a = cutting and paring.

dak, dakh = a vine (Santali.lex.)

d.ak = the Indian moorhen, gallinula chloropsis indicus (Santali.lex.)
d.aeka = long, widespread, with an upward turn, as horns; d.akd.aka = long, tall, high, projecting (Santali.lex.)

d.a_n:k, d.a_n:kh = a large green wasp; d.an:kh, dam.s'a [Skt. dam.s' to sting, to bite] a sting; a bite ntali.lex.)

d.a_n:k, d.a_n:kh = a bright piece of metal placed under a precious stone to make it shine brighter; a metallic cement (Santali.lex.)

d.a_ku, d.a_gu = a spot, stain, bot; a mark put on cattle with a red-hot iron; inoculated cow-pox (Ka.M.); d.a_ga (H.); d.a_gu (Ta.Te.)(Ka.lex.)

d.en:kan.i, d.en:kan.a, d.hen:kan.i = the flag-staff (with or without its flag) on the bastion of a fort (Ka.lex.)
d.an:ko = a large kettle-drum; d.a_kalum, d.a_khalum [Skt. d.hakka+ a kind of drum] a kind of drum; d.a_khalum besa_d.avum to get a drum beaten before a person by a spirit or ghost (G.lex.) d.an:ke, d.akke = a pretty large double drum (Ka.); d.an:ke (Te.); d.an:ka_, d.a_n:ka_, a large kettle drum (M.)(Ka.lex.)

d.an:gorum, d.an:go, d.an:goro = a thick club; a cudgel (G.lex.) d.akka = stick (Skt.); d.aku = stick put up to keep a door shut (S.); d.akka_ = straw (P.) d.a_garn.e~ = short thick stick (M.); d.an:ga_ = stick (Pakt.); d.a_n: = thick stick (A.); d.a~_klo = stalk, stem (N.)(CDIAL 5520). **t.he~gd.a_** cudgel (M.); **t.hi~gd.a_** cudgel (M.); **t.hen:ga_** cudgel (B.Or.)(CDIAL 5500). **<u>Image: club</u>**: **d.a~_g** club (H.) > stick (P.G.); club, mace (K.)(CDIAL 5520) **d.angi, d.ange** staff, cudgel, etc. (Ka.); **d.anke, t.anke** id. (Ka.); **t.ankam** mace (Ma.)(DEDR 2940). **t.in:gri_** bough (L.); **t.in:gar** contemptuous term for a tall and thin man (N.); **t.ikorn.e~** stick (M.)(CDIAL 5460). **<u>Mace, cudgel; chisel</u>**: **t.an:kam** mace (Ma.); **t.an:ke, d.an:ke, d.an:gi, d.an:ge** staff, cudgel, etc. (Ka.)(DEDR 2940). **tunger** axe (Tor.); **t.ho_n:gi** (Phal.); **t.on:gur**[u] a kind of hoe (K.); **t.a~_gi** adze (N.); **t.a_n.i** battle-axe (Or.); **t.a_n:g, t.a_n:gi** spade, axe (B.); **t.a~_ga_, t.a~_gi_** adze (Bi.); **t.a_n.i_** axe (Bhoj.); **t.a~_gi_** hatchet (H.)**;** **t.ho**~ axe (Wot..); **t.hon.** battle-axe (Bshk.); **t.hen.** small axe (Bshk.)(CDIAL 5427). **t.an:kita-maca** a stone (i.e.chiselled) platform (Pali); **t.a~_kvu~** to chisel (G.); **t.a~_kn.e~** (M.)(CDIAL 5433). **t.angi** axe (Didey); **t.angia** id. (Bonda); **t.anga** big axe (Asur); **t.angeja** small axe (Asur); **t.engoc** small axe (Santali); **t.anga** axe (large) (Santali). (S.Bhattacharya, <u>Some Munda Etymologies</u>, 1966, p.29).

4098.**<u>Image: stone-cutter's chisel</u>**: **t.an:kam** < **t.an:ka** stone-cutter's chisel (Ta.lex.) **t.an:ka** stone mason's chisel (Pali); spade, hoe, chisel (R.); **t.an:ga** sword, spade (Skt.); **t.am.ka** stone-chisel, sword (Pkt.); **t.a~_ki_** chisel (H.M.); **t.a~_k** pen nib (G.M.); **t.a_n:gi** stone chisel (A.)(CDIAL 5427). **<u>Image: staff, cudgel</u>**: **t.an:ke, d.an:ke, d.an:gi, d.an:ge** a staff, a cudgel etc. (Ka.); **t.an:ga** (Ma.); **tey, tay** to strike, beat (Ta.Ma.)(Ka.lex.) **<u>Rod, spike</u>**: **t.an:g** projecting spike which acts as a bolt at one corner of a door (K.); **t.a_n.o** rod, fishing rod (N.); **t.a_n.i** measuring rod (N.); **t.a~_k** iron pin, rivet (H.); **t.a~_ki** thin iron bar (Ku.)(CDIAL 5428). **dasi** stake, pointed wooden peg, silver in the foot (Ka.); a painted (?pointed) palmyra stick, a stake (made of wood) (Tu.); **dasiku** a pointed wooden peg (Ka.)(DEDR 3017). **d.a_ha_** piece of wood fastened to neck of cattle to prevent straying (L.); **da_so** rooftree (Ku.); beam (N.); **da_sa_** broad and thin piece of stone or wood (H.); **da_s'a_** lath used to reinforce a thin wall (M.)(CDIAL 6318).

Glyph: *ka~rec* one eyed, blind of one eye (Santali) *kharen* a pupil of eye (Santali)

Glyph: *kero~t.* to turn half round, facing the right or left (Santali) **ked.e** behind; **ked.a** the back, the rear (G.)

Glyph: **ked.o**, **ked.i_** a track. A way, a road (G.)
Glyph: *ka_nta_* woman (Skt.)

Substantive: *ke~r.e~ ko~r.e~* an aboriginal tribe who work in brass and bell-metal; *ker.e sen:gel* fire in a pit, as the Koles burn charcoal (Santali) *kerani* a writer, a clerk (Santali)

Glyph: *kaidau* to subdue (Santali)
Substantive: *kat, kaitha* the hindu caste of kayastha (Santali) *ka~t* a wall built of mur or clay, to build a wall with clay (Santali) *kat. bad.hoe* a worker in wood, a carpenter (Santali)
Substantive: *kho~edak* mine; *kha~edak kho~edak* mines (Santali)

Substantive: mat.akku (mat.akki-) to engage as a servant, secure for oneself as an article or cargo (Ta.)
mer.ed, mr.ed, mrd iron; enga mer.ed soft iron; sand.i mer.ed hard iron; ispa_t mer.ed steel; dul mer.ed cast iron; i mer.ed rusty iron, also the iron of which weights are cast; balimer.ed iron extracted from sand ore (Mu.lex.)
nan:ga naked (Santali)
na_ga lead (Skt.)
Glyph: *mar.k* to subdue, make to obey (Ko.)(DEDR 4645). *mad.avum* to subjugate; to control; to make crooked (G.)
Glyph: *mat.al* eyelid (Ta.); *mat.a* eyelashes (Pe.); *kanu mat.a* eyebrow, eyelid (Kuwi)(DEDR 4650). *me~t kut.i* the eyebrows (Santali)
Glyph: *lot.om* to subdue (Santali)





Image: parting the legs wide; stand astride; forked branch: **pan:ga** parting the legs wide; **forked branch of a tree** (Te.); pan:gat.i forked, pronged, placed wide apart; pan:gat.i-ka_l.l.u bandy legs; pan:gat.incu to part wide, straddle (Te.); panla fork (Kond.a); pan:ga state of being astride or forked (Ka.); bagat.u open the legs, straddle, to disjoin the legs (Ka.); pan:gad.a distinct, apart; bagat.uni to straddle, stand astride (Tu.)(DEDR 3818). Image: astride: pan:ga the state of being astride or forked: a fork, the forked branch of a tree (Ka.); pan:ge (Te.); pan:ga-na_ma a large sprawling forehead mark (Ka.Te.); pan:gad.a astride, apart, distinct (Ka.); pan:gat.i (Te.)(Ka.lex.) phe~gd.a_, phegd.a_ bowlegged (M.)(CDIAL 9037). To divide; images: to separate; to straddle: vaku to divide, separate (Ta.Ma.); bagi, bagaru to separate, to disunite; to divide, to make pieces, to cleave, to tear (Ka.); 5580. Image: astride: bakkar, bakka_r a stride (Tu.lex.)
Tin; lead: van:ga tin, lead (Skt.); calx of tin (used as an aphrodisiac)(S.); van:g, ban:g (P.); **ba~g** tin, lead, calx of tin; ba~ga_ having a metallic or brackish taste (of water)(H.)[cf. ven:ka_ram a kind of caustic (Ta.lex.)](CDIAL 11195).

Cylinder seal. Susa. Early Dynastic III. After Legrain 1921: 252. Theme: a person flanked by two jackals (?) in conflict.

Ivory handle of a flint-bladed knife. Gebel el-'Araq in Upper Egypt. Style of the Jemdet Nasr period ca. 3000 BCE.After Pritchard 1969b: 9, no.290.





Gold seal. Bactria. A winged person flanked by two heads of lions (a) obverse; (b) reverse. After Ligabue and Salvatgori n.d. (1989): figs. 58-9; cf. Asko Parpola, 1994, Fig. 14.29, p. 255.

Khafaje bowl. Dark grey steatite (?serpentine) bowl carved in relief. Early Dynastic. (BM 128887). 1. A bull, a vulture, a lion, fish?; lion and bull in battle; lion is helped by a vulture; a scorpion is in front of the bull which is lying on its back; a small bear stands facing a palm tree; the tree is placed under the legs of the lion. Ears of corn (or trees) are seen in the background. 2. A man sitting, with his legs bent underneath, upon two zebu bulls. Zebu or brahmani bull is shown with its hump back; a male figure with long hair and wearing a kilt grasps two sinuous objects, representing running water, which flows in a continuous stream; linked to the sun and star: a sickle moon and a rosette-formed star are in front of his head. 3. Around the bowl, another similar male figure stands between two lionesses with their head turned back towards him; he grasps a serpent in each hand. In front of his head there is a rosette-shaped star.This evokes the proto-Elamite bull-man; the man holds in his hands streams of water and is surrounded by ears of corn. He has a crescent beside his head. On the other side of the bowl, a man is standing upon two lionesses and grasping two serpents. The zebu is reminiscent of Sarasvati Sindhu seals. The stone used, steatite, is familiar in Baluchistan and a number of vessels at the Royal Cemetery at Ur were made out of this material. The bowl dates from c. 2700-2500 B.C. and the motif shown on it resembles that on a fragment of a green stone vase from one of the Sin Temples at Tell Asmar of almost the same date.

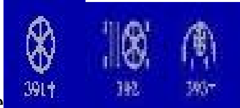
BM 103240; Wiseman, opcit, 1962, Pl. 22c; Above: eagle, goats kneel before shrine. Below: contest frieze. Lapis lazuli.





Bronze foot and bronze anklet: Mohenjo-daro [After fig. 5.11 in: DP Agrawal, 2000].

"In the style of wearing ornaments and amongst toilet objects there are quite a few instances which seem to have continued through the ages. For example, the Marwari ladies of Rajasthan wear a large number of bangles on their lower and upper arms reminding one of the manner in which the famous dancing figure from Mohenjodaro did (Marshall, 1931: Vol. III, Pl. XCIV, 6-8). An engraving on a stone stele found at Banawali (Bisht, 1987: 150) shows a person wearing a **d.amaru**-like armlet and wristlet, which reminds one of a similar ornament worn by women folk in Rajasthan and Gujarat. The anklet (**pa_yala**) worn by another figure from Mohenjodaro (Mackay, 1938, Vol. II, Pl. LXXIII,5) is still used by Indian women, sometimes disappearing from and at others re-emerging on the fashion scene. The gold hollow cone (called **chauk** in Hindi; Marshall, 1931: Vol. III, Pl. CXLVIIIA.2) is used even now on the forehead by the ladies of Rajasthan and Haryana. Referring to it Vats (1940:442) says: 'By Hindus in northern India **chauks** are regarded as essential ornaments which every man, rich or poor, has to give at the wedding of his daughter-in-law. This ornament is now worn chiefly on religious and important domestic ceremonies only'. Reference may also be made to girdles worn by the Harappan terracotta figurines (mackay, 1938, Vol. II, Pl. LXV, 21,22). While girdles have almost gone out of fashion in urban areas, one may still see them around the waist of womenfolk inrural north India. Spiral finger-rings, though of a rather universal character, may not be out of place to be mentioned in the present context as well…" (BB Lal, 2000, opcit.)

era, er-a = eraka = ?nave; **era**ko_lu = the iron axle of a carriage (Ka.M.); cf. irasu (Ka.lex.) [Note 

Sign 391 and its ligatures Signs 392 and 393 may connote a spoked-wheel, nave of the wheel through which the axle passes; cf. ara_, spoke] eraka, era, er-a = syn. erka, copper, weapons.
The pair of 'spoked wheel' glyphs may be related to **san:gad.i**, 'a pair' and the following etyma: **ara, ara_** (RV.) = spoke of wheel; **[a_r..i = circle (Ta.Ma.]**
a_r = battle (Ta.)
[a_r-a, ar_a = suffix to denote one who makes things: kamma_r-a, uppa_r-a = smith, salt-maker (Ka.); a_r-r-u = to do, make (Ta.); a_re, a_reka_r-a, a_reya = a Mahratta man (Ka.Te.)]
a_ra brass (Ka.) a_raku_t.a (Skt.)
[**a_re, a_ra_** = shoe-maker's awl or knife (Ka.)]

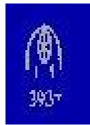
eran. = an anvil (G.)

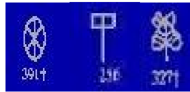
arka = name of the tree colotropis gigantea (AV 6.72.1)(Vedic.lex.) [cf. sal, sp. Tree; thus a tree may be a rebus representation of arka-sa_la or agasa_le, goldsmith's workshop or goldsmith]

erake, er-an:ke, r-akke, r-ekke = a wing; a fin; an arm (Ka.); ir-aku, ir-ai, cir-aku (ta.); ir-agu, egir-u (Ma.); er-ake, r-ekke (Te.); a rib (Te.)(Ka.lex.) [Glyphs of two winged birds flanking a tree on a Yale tablet and other birds with wings, may be rebus for: erake, arka bat.a sa_la = copper furnace (arkasa_le, agasa_le)].
era_ = claws of an animal that can do no harm (G.) [Note the U sign ligatured with fig leaves and a glyph denoting claws]

er.ka ir.ki, era iri, er.a ir.i = be at enmity with each other (Santali.lex.Bodding)

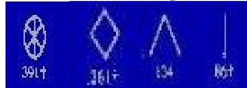
er.an = to leave behind, dodge; turn aside, parry; escape (Santali.lex.Bodding) erer. = to turn aside, to parry, to avoid, to dodge, to give the go-by (Santali.lex.)[Note the two animals shown with their head turned backwards: tiger and antelope].

 Glyph: *tapor* 'a hod, cover of a cart' ligatured with a pair of wheels. do*hra gad.h tapor*. Substantive: *trapu* 'tin' (Skt.) The ligatured glyph may connote a tin-metal-smithy. [lit. tin metal-work fort.]

 This segment of the epigraph on the Dholavira sign-board, read from left to right, may thus mean: **put.ia** or **eraka** (or, *kundau*) **s'a_lika (loh) kamat.ha_yo** [fellies (or, nave of wheel), pin, ficus leaf; rebus: copper, workshop, (metal) artisan]

> A rebus of **put.ia** could also be **put.a**, 'calcining (or purification) of metals': **put.a** = the purifying or calcining of metals etc. by fire (Tu.lex.); put.amu = refining a metal; calcining, calcinations (Te.) put.a = crucible; put.akke ha_ku = to put into a crucible in order to prepare drugs; to refine, as metals (Ka.); put.avikku = to apply fire in order to refine metals; to burn (Ka.lex.) **put.-** (-t-) to set fireto, kindle (Pe.); put.pa (put.t-), pur.pa (pur.t-) to roast (Kui)(DEDR 4260).
> put.abhedana = a town, a city (Ka.lex.)
> put.t.a = fox, jackal (Ma.); put.t.e id. (Tu.)(DEDR 4261).

The next two segments of the epigraph on the Signboard can be interpreted in this context:

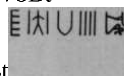


The next two signs are: dhakna, 'lid'; rebus: d.ha_kin.i, 'sword'; kod.a, 'one'; rebus: kod., 'artisan's workshop'. Alternative: man.d.e = covering dish; rebus: man.d.a_ = warehouse, workshop (Kon.)

The lid may also be read as: *bakkare*; rebus *ban:gala*, chafing dish, furnace.

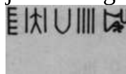
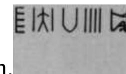
Glyph: *d.ha_n:kan.i_, d.ha_n:kad.um, d.ha_kan.u , d.ha_n:kan.iyum* a lid, a cover; protection; a protector (G.) *dhakni, dhaknic, dhakon* 'a lid, a cover' (Santali)^

 m0478At m0478Bt

m0479Atm0479Bt3224

m1425Atm1425Bt

m0480Atm0480Bt Tablet in bas-relief. Side a: Tree Side b: Pict-111: From R.: A woman with outstretched arms flanked by two men holding uprooted trees in their hands; a person seated on a tree with a tiger below with its head turned backwards; a tall jar with a lid. Is the pictorial of a tall jar the Sign 342 with a lid? Sign 45 seems to be a kneeling adorant offering a pot (Sign 328)

2815 Pict-77: Tree, generally within a railing or on a platform.3230

erukku = to cut, hew (Ta.); erk- to cut down bushes (Pa.Go.); **erga** to make a clearance, clear jungle or thick grass or scrub; act of clearing jungle (Kui); erg to cut, slash (Kuwi); en-gde to cut down a jungle (Malt.)(DEDR 824).

erkem = billhook (Go.)(DEDR 824).

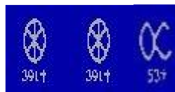
eruvai = copper (Ta.); **ere -** a dark-red colour (Ka.)(DEDR 817). **eraka, era, er-a** = syn. **erka**, copper, weapons (Ka.)

Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)
Substantive: *sal* workshop (Santali)

gand.ra trunk of a tree (Kuwi)(DEDR 1176). Cf. *gan.d.ra god.d.ali* a battle axe (Te.); *ko_t.a_li* axe (Ta.); *god.el* (Go.); *kut.ha_ra* (Skt.)(DEDR App. 32; CDIAL 3244).

The last or fourth sign is: **kod.** 'one'; **kod.** 'artisan's workshop'

The segment of four signs can be read as: put.ia kon.d. dhakna kod. = fellies, corner, lid, one; rebus: copper (calcining, **put.a**) fire-pit (furnace, **khu~t**.) **man.d.a_ kod.** (artisan's warehouse) workshop.



The message on the Signboard of Dholavira is an advertisement board of the products and services offered by the metal worker community of the fortified place (since the board adorned the Northern gateway):

Could **put.a-** in **put.abhedana** also have represented calcined copper (hence, put.ia?); cf. ve_ti = homa-kun.d.a or pit for yajn~a; bhe_dana = breaking, splitting, separating (impurities); bhe_daka = refining(Ka.lex.) Thus, put.abhedana could connote the urban settlement where copper (ore) is calcined.

Plough without a pole: **kur** ploughshare (L.); **ku_t.a** part of a plough (Pali); id., its share (Skt.); **kut.aka** plough without a pole (Skt.); **kur.** ploughshare, sole of plough (L.); **ku_r., ku_r.ha_** (X **ka_r.hna_** to plough) body of a plough (H.)(CDIAL 3393). **kur..a, kur..u, gur..a, gur..u** ploughshare, iron used in cauterizing (Ka.); **kor..u** bar of metal (Ta.); ploughshare (Ta.Ma.); **ku.** id. (To. < **gu.-** Badaga); **koru** a bar of metal (Tu.)(DEDR 2147).

It is possible that the Signs 162, 167, 169 and their variants as well as ligatures including these pictographs, are stylized versions of the 'tree' pictograph, since some of these signs and variants are comparable to the orthography of a tree with varying sizes of branches depicted. The pictograph is apparently a widely distributed 'weapon' category with a number of stylized variants (perhaps, next in importance only to the 'weapon' connoted by the one-horned bull pictograph, the 'jar' pictograph and the 'wide-mouthed pot' pictograph), given the number of signs which are concordant or include the pictograph as part of the ligatured signs.

Occupancy, possession, stone-cutter

There is a word in Santali which connotes both occupancy and possession.

Substantives: *dok* 'to shelter, save, protect, rescue, preserve, shield' (Santali) *dokhol* to occupy, or be in possession; occupancy, possession; *gan: ra~i parom no parom dokhol tahe~kantalea* we were in possession of both banks of the Gang river; *manjhi do noa jaegae dokhol akawadina* the village chief put me in possession

of this land; *noa bar.ge in dokholre menaka* this garden is in my possession. (Santali) *toku* 'to accumulate, collect'; add, summarise; *tokuti* class, herd, flock, aggregate, total (Ta.*); tokai* 'flock, herd, sum (Ta.); *tuka* sum, assembly (Ma.); *toga* party (Te.)(DEDR 3476). *don:gol* 'a large house, a palace' (Santali) *dun:ger., dun:gel* 'in vast numbers, in crowds; a party, a group'; *don:gol* 'company, detachment, party, group, crowd, sect'; *bar pe don:golko calacena* 'two or three parties have gone' (Santali) dondad.i, dondan.a, dondan.i, dondul.i mass, crowd, throng, squeeze, tumult, fray; dodde mass, heap, crowd (Ka.); dondad.i crowd, throng; dontara, donti pile, heap (Te.)(DEDR 3505. don herd of goats (Sh.); dhana contest, prize, booty, property (RV.); dhana wealth (Pali.Or.); dhan.a (Pkt.); dhan.u herd of cattle, flock of sheep (S.); dhan. herd of cattle, wealth (P.); herd (WPah.); flock of goats and sheep (WPah.); herd of cattle (G.); dhan wealth in cattle (B.); cattle (H.); enrichment (M.); wealth (A.B.Mth.H.Ku.G.M.); dhanu id. (S.); dana possessions (Si.); wealth (K.) (CDIAL 6717).

Glyphh: *d.okiyum* looking at by raising the head; *d.ok* the neck (G.)

Substantive: *t.aka* 'silver, rupee, money' (Santali)

Substantive: *deko* 'hindu' or *t.aka* 'silver' (Santali) *deko per.a* 'relative Hindu'; per.a 'a kinsman, a relative, to receive one as a kinsman, to show hospitality, to visit' (Santali) This term is used together with *deko. deko per.a* = a courteous term applied to Hindus; deko per.a janum jhan.t.i rorokgea = a Hindu and a thorn fence prick; *per.a hor.ok ko calaoena* 'they have gone on a visit to relatives' (Santali) *t.aka kaud.i* 'money' (Santali)

Glyph: *daeka* 'wide-spreading horn'; *d.aeka kad.ru* 'a buffalo having long, spreading horns with an upward turn' (Santali) [Sometimes, two stars are depicted in the curve of the horns; rebus: *t.aka* 'silver'?]

Glyph: *deke* 'the hip, rump, buttocks (Santali) d.heko = a protuberance; a knot; d.haiyum = a large lump of clay (G.lex.) d.heo = a weight, solid measure (Santali.lex.)

Substantive: *ghorko rna* goods, property; *nunak hoyok kantaere ho~ enreho~ bae ghorkorna dar.eaka* although he gets so much still he can't collect any property (Santali)

Glyph: *kok- (-t-)* to raise and project the head (while seeing a distant object)(Kond.a); *go_pka* to stretch forth, stretch the neck in order to observe something, crane the head out, put forth the ear (corn)(Kui); *go_k* to look up, await*; go_khmu_* look up! (Kuwi)(DEDR 2180). *ghoce, ghocr.e* awry, wry, off the straight; *ghoce hot.ok* wry neck (Santali)

Glyph: *gorka* spear (Pa.Go.); *gohka* (Go.)(DEDR 2126).

Glyph: *gok* to carry on the shoulder; *gok idi* to carry away on the shoulder (Santali)
Glyph: *d.ehka* = carrying on shoulders; *tegal* = upper part of shoulder

deko = a Hindu (Santali)

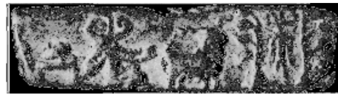
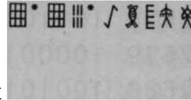
tega = scimitar, cutlass

si~ghaut.a_ weapon-cleaner's polishing horn (Bi.)(CDIAL 12585). cf. **sikala** polishing, furbishing, burnishing; **sikiliga_ra, sikalaga_ra** a polisher of tools, weapons (Ka.); cf. **sikata** sandy soil (Ka.)(Ka.lex.) cf. **sita_** candied sugar, sugar (Skt.lex.)

> mandil, mandir = temple (Santali) ma_d.a = shrine of a demon (Tu.); ma_d.ia = house (Pkt.); ma_l.a a sort of pavilion (Pali); ma_l.ikai = temple (Ta.)(DEDR 4796).

See the glyph on side c of tablet m0488.

m0488At m0488Bt

m0488Ct 2802

Substantive: *man.uko* a bead; a gem (G.)

Glyph: *man.uko* a single vertebra of the back (G.)

A variant of Sign 12 shows a glyph of a bearer of burden slung on a pole across the soulder.
This combined with 'rim of pot' glyph may connote: spit + copper furnace (*sike* + *kan.d.kankha*); rebus: *sikuar* sling; *kan.d.kankha* rim of pot.

> *man.i* jewel of office (Skt.); *man.iyam* office of the village headman (Ta.); superintendence of temples, palaces, villages (Ma.); *man.e.v*, *man.ye.v* the office of monegar (Ko.); *man.iya, man.iha, man.eya, man.e* superintendence of temples, maths, palaces, custom-houses (Ka.); *man.iga_re* revenue inspector (Tu.); *man.iyamu* office or duties of the manager of a temple (Te.)(DEDR 4674).
>
> *man.n.u* to do, perform, adorn, decorate, polish (Ta.); *man.ai* to create, fashion (Ta.); *manayuka, maniyuka* to fashion, form earthenware, make as a potter (Ma.)(DEDR 4685).
>
> Glyph: *man.ai* low wooden seat, low earthen dais, wooden base of cutting instyruments, footstool (Ta.); *man.i, man.e* stool, low bench, seat (Ka.); *man.e* low stool to sit upon (Tu.)(DEDR 4675).
>
> *ka_n.t.o* the backbone; a fish-bone (G.)

From a survey of the following semantic clusters which could have formed the basis for the depiction of pictographs on inscribed objects -- to represent life-activities of a people --, it is hypothesised that the orthographic representation of a backbone (**barad.o** -- Gujarati) and a bull (**baradh** -- Punjabi) -- both connote a mason, with an early phonetic form: ***bard.a** which gets 'refined' (hyper-sanskritized) into Sam.skr.tam as **vardhaka**. [semantic: cutting , dividing , cutting off , shearing; a carpenter (Ra_ma_yan.a); cf. homonym: **vr.dh** = exhilarate (esp. the gods , with praise or sacrifice) RV.; cf. **bharad.o**, 'devotee of S'iva (Gujarati); **vr.dhat-** elevate , raise to power , cause to prosper or thrive AV. S'Br. MBh. ; to exalt , magnify , glorify (esp. the gods) (Skt.)]. A superb example of the evolution of a few Sanskrit words from the substratum Meluhhan or indic, since the words find their echoes in almost all languages of Bha_rata.

bal.ad = an ox; a bullock; a bull (G.lex.) baredi_ = herdsman (H.); baldi_ = oxherd (P.); baldiya_ cattle-dealer (Ku.)(CDIAL 9177). bali**varda** = ox, bull (TBr.); baleda_, baled = herd of bullocks (L.); baledo (S.); bald, baldh, balhd = ox; baled, baleda_ = herd of oxen (P.); bahld, bale_d = ox (P.); balad, bald = ox (Ku.); **barad** (N.); balad(h) (A.); balad (B.); bal.ada (Or.); **barad(h)** (Bi.); barad (Mth.); barad (Bhoj.);. bardhu (Aw.); balad, barad(h), bardha_ (whence **baladna_** to bull a cow (H.); bal.ad (G.)(CDIAL 9176). Cf. Naha_li_ **baddi_** = ox ; **pa_d.o_** = bull (Sikalga_ri_, mixed Gypsy language.)(CDIAL 9176). **pa_r-al** = bull (Ta.)(DEDR 4020). **bare itat** = a bullock given at marriage by bridegroom to bride's brothers (Santali.lex.) baro barabbar = opposite, face to face; baro, baron. = provisions, food rations, supplies (P.lex.) barotwa_la_ = a partner (K.)(P.lex.)



Steatite ornament, a pectoral with just one ligatured sign

m1656 Steatite ornament. On this pectoral, a pot is depicted as overflowing in two streams. [The standard device in front of the bull will be analysed in a separate section.]

The depressed edge of the pectoral indicates that the object could have been encased in metal and worn like a pendant on a necklace.
The dominant orthographic features of this pectoral which can be interpreted as an inscribed object are:

29. One-horned heifer, young bull with a pannier on the shoulder and ligatured with a single, curving horn, with rings on the neck
30. An over-flowing pot shown on top of the heifer bull
31. A standard device in front of the heifer bull

Each of these pictorial motifs can be elaborated using lexemes of Proto-Indo-Aryan languages and using the rebus method of decoding (i.e. the use of pictures to denote similar sounding, substantive words).

bharat. bharat., bar. bhar. = to issue uninterruptedly, to come away continuously (Santali.lex.) **bharati_** = the flux of the ocean; the tide (G.M.lex.) bharn.d.o = a whirlwind (Santali.lex.) bharta, bharti, bharata = the high tide, flow (Tu.lex.)

bharad.avum = to scribble; to scrawl; to write in paste (G.lex.)

bharia = stick with slings at each end in which anything to be carried is placed, carried over one shoulder (Santali.lex.) **bha_rayas.t.i** = bearer of a ka_vad.i (Te.lex.); bharakud.u, bharat.ud.u = a porter, a servant (Te.lex.) **bharia_** (Mth.); bha_ria_ (Or.); bha_ri (A.B.); bhariya_ (N.); bha_ri_ porter (Ku.)(CDIAL 9464). bha_rakud.u = one who carries a load; bha_rava_hud.u = id., a porter (Te.lex.)

bha_rat.iyo, bha_ro, **bha_rat.iyum**, bha_ravat.iyo = a beam; bha_ra, bha_ro = a load, a burden (G.lex.)

bharad.o = cross-beam in the roof of a house (G.lex.) bha_rat.iyum, bha_rvat.iyo, bha_rot.iyo = a beam (G.lex.) ba_ri = bamboo splits fastened lengthwise to the rafters of a roof from both sides (Tu.lex.) ba_rapat.t.e = chief beam lying on pillars (Te.lex.)

bharata = casting metals in moulds; **bharatiyo** = a caster of metals; a brazier; bharatar, bharatal, bharatal. = adj. Moulded; an article made in a mould; cf. bharavum = to fill (G.lex.) bha_ravum = to keep live coals, buried in the ashes (G.lex.)

> **?furnace.** Suffixed o-grade form **g*[w]*hor-no-*. **a.** fornax, furnace, hornito, from Latin *furnus, fornus, forna_x,* oven; **g*[w]*hr-*. **a.** burn from Old English *beornan, byrnan* (intransitive) and *bærnan* (transitive), to burn; ?**forge**. Middle English, from Old French, from Vulgar Latin *[*]faurga*, from Latin *fabrica*, from *faber*, worker. **?hearth**. Middle English *herth*, from Old English *heorth*.

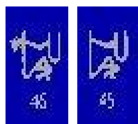
bharata = a factitious metal compounded of copper, pewter, tin etc.; green carbonate of lime (M.lex.) barad., barhat. = rough; not hard; brittle (G.lex.) **bharata** = fire in which the rice for bra_haman-s is boiled; name of Rudra (the Maruts are called his sons: RV 2.36.8); name of an A_ditya: Nir. 8.13); name of Agni (kept alive by the care of men)(RV); of a particular Agni (father of Bharata and Bharati_)(MBh.); a priest (r.tvij: Naigh. 3.18)(Skt.lex.) bharta = a method of cooking fish, mushrooms and vegetables by wrapping up in leaves and roasting in ashes (Santali.lex.) **bara_t.a** = a kind of firework (Tu.lex.) bharta = bake in live coals (Santali); bharta (Desi)(Santali.lex.) **bharan.yu** = fire (Skt.lex.)

Glyph: *tapu* ‘to overflow as water’ (Santali)
Substantive: *trapu* ‘tin’ (Skt.)
Glyph: *kan.d.a* ‘waterpot’ (Santali)
Substantive: *kan.d.* ‘furnace’ (Santali)

vahoro ‘trader’
vahur.o ‘heifer’

Backbone , caster of metals, devotee

Substantive: *bharatiyo* a caster of metals; a brazier; **bharata** casting metals in moulds; *bharatara*, *bharatala*, *bharatal.a* adj. moulded; *bharavum* to pour into; to fill in; to put in; to fill; *bharatiyum* an invoice (G.)
The orthographic accent is apparently on depicting the backbone of the kneeling adorant which has been stylized as a sign.



[Note the glyph of a kneeling adorant offering a pot; alternative readings: Reading 1: **kammara** (krem, 'back'); Reading 2**: karod.** (spine, **khara_di_** turner, sawyer) + **kammat.a** (pot, coiner) or, karad.o, 'goldsmith's tool'; kammat.a, 'mint']

bador sat.ok = short neck and projecting chin, ugly, disgusting (Santali.lex.) bed.ol. = shapeless, ugly (G.); sat.ok = to bite, to snap (Santali)

marud.iyo = one who makes and sells wristlets, and puts wristlets on the wrists of women (G.lex.) **marad.a** = twisting; a twist; a turn; marad.avum = to twist, to turn; marad.a_vum = to bend; marod.a = a twist, a turn; writhing, a bend; marod.avum = to writhe, to twist, to contort; to bend (G.lex.)

barad.u, bar-ad.u = an empty pot (Ka.lex.)

bharad.o a devotee of S'iva; a man of the *bharad.a_* caste in the bra_hman.as (G.) **barar.** = name of a caste of **jat-** around Bhat.in.d.a; barar.an da_ mela_ = a special fair held in spring (P.lex.) **bhara_d.** = a religious service or entertainment performed by a bhara_d.i_; consisting of singing the praises of some idol or god with playing on the d.aur (drum) and dancing; an order of at.hara_ akha_d.e = 18 gosa_yi_ group; bhara_d. and bha_rati_ are two of the 18 orders of gosa_yi_ (M.lex.) **bharat.aka, bharad.aka** = a particular class of mendicants (Skt.lex.) **bharat.a** = a potter or a servant: Un. 1.104 (Skt.Ka.lex.) **bard** Middle English, from Irish and Scottish Gaelic *bard*and from Welsh *bardd*. One of an ancient Celtic order of minstrel poets who composed and recited verses celebrating the legendary exploits of chieftains and heroes. **2.** A poet, especially a lyric poet. **ballad**: etymology: Middle English *balade*, poem or song in stanza form, from Old French *ballade*, from Old Provençal *balada*, song sung while dancing, from *balar*, to dance, from Late Latin *balla_re*, to dance. http://www.bartleby.com

ba_rn.e, ba_ran.e = an offering of food to a demon; a meal after fasting, a breakfast (Tu.lex.) **barada, barda, birada** = a vow (G.lex.)

barad.o = spine; backbone; the back; barad.o tha_bad.avo = lit. to strike on the backbone or back; hence, to encourage; barad.o bha_re thato = lit. to have a painful backbone, i.e. to do something which will call for a severe beating (G.lex.) barad., barad.u = barren, childless; baran.t.u = leanness (Tu.lex.) *man.uk.o* a single vertebra of the back (G.)

vara_d., vara_d.h = a quarrel; vara_d.havum = to cause to quarrel (G.lex.)

bara_d.o = a loud cry (G.lex.)
bha_rot.i_ = a bundle of fuel; bha_ro = a load, a bundle (g.lex.)
d.had. = leader, ring-leader, guide, veteran (Santali.lex.)
da_d.i = a military expedition, invasion (Te.lex.)

Occupation of a new house

A terms signifies occupation of a new house: *man.d.iau*, *man.d.au* to occupy a new house, to take up one's residence, to take shelter, as a wild animal in a thicket; *neako man.d.iauena* 'they occupied the house this year'; *per.a heckateko an.d.iauena* 'friends (or visitors), have come and encamped'; *on.d.eye sen man.d.iau akana* 'he has gone there and taken up his residence' (Santali)

Rebus (glyph): *man.dhwa* a temporary shed or booth erected on the occasion of a marriage; *man.d.om* a raised platform or scaffold (Santali) *man.d.apa* a bower; an arbour; a temporary structure erected on festive occasions (G.) *ma~r.o~m* a platform, used to keep straw on, or from which tow atch crops (Santali)

Glyph: *man.d.man.d.e* ‘to stand in the way of others’ (Santali)

Glyph: *pagela_* ‘a harmless snake’ (Ka.); *pagele* ‘a kind of harmless snake’ (Tu.)(DEDR 3809).

Glyph: *mali* a small earthenware cup in which oil is burned for lighting purposes; *diuhe mali* the earthenware vessel which holds the oil for a lamp; *maliya benaceda* she pushes out her underlip like an oil vessel (she is pouting)(Santali) *mallam* cup, porringer, plate; mallai mendicant’s begging bowl (Ta.); *malla, mallika* earthen cup, bowl; mallam a vessel of a coconut shell (Ma.); *malla, mallike* a sort of drinking vessel, earthenware vessel of a peculiar form (Ka.); *malla* shallow earthen dish; *mallakamu* oil cup in a lamp; *malaka* dish (Te.); *malla_* pitcher for water; malla waterpot (Go.); *malla* bowl (BHSkt.)(CDIAL 9909; DEDR 4744).

Substantive: *mal* a bead, beads; a nacklace; *munga mala, sa~k mala* coral beads of a large size; *bha~uri mala* beads made from a certain fruit about the sizxe of round pepper; muti mala a pearl necklace; *sikr.i mala* a chain worn round the neck; *bar lar. mala* two strings of beads (Santali) *malaku* a round ornament of glass beads and coral or pearls strung upon a thread, so that each bead is separated by a knot, worn by females on the head; a kind of necklace (Ka.); a kind of necklace (Tu.)(DEDR 4733). *ma_lai* garland, necklace (Ta.Ma.); *ma_le* (Ka.); *ma.le* necklace (Kod.); *ma_le* (Tu.); *ma_la* id. (Te.); *ma_la* (Skt.)(CDIAL 10092; DEDR 4827).

Substantive: *ma_l.am* hole in earth (Ma.); *ma_l.i* rat’s hole (Ka.); *ma.l.i* long hole (Kod.)(DEDR 4832). *malkat.a* coal miner (Santali)

Glyph: *ma_la* a creeping or climbingplant (Kui); *ma_r.a, ma_rra* creeper (Kuwi); *ma_r.a* creeper (Pe.)(DEDR 4833).

Glyph: *malukku* slip-knot (Ta.); *malaku* a turn, twist, fold (Ka.); *mala-gonu* to be twisted; *maluku* a turn, slip-knot (Te.)(DEDR 4734).

Glyph: *mala_pu* to turn back; *malapu, mala_cu* id. (Te.); *malay* to return (Kol.); *mal, mall* to return (Go.)(DEDR 4734). *malar* to turn the face or mouth upward (as a pot)(Ta.); *mala.ra* outstretched with face upward (Kod.)(DEDR 4740).

lar. a string, as of beads, once round, as a chain (Santali)

lar., lat. membrum virile, penis (Santali)

Glyph: *mall* to root out (Kol.); to uproot (Nk.)(DEDR 4745).
Glyph; *malan:ku* eel (Ta.); *malu~gu* a fish (Te.)(DEDR 4737).

Glyph: *malagu, malan:gu* to recline (Ka.)(DEDR 4735). *va_lu* to bend, slope (Ka.); *v(r)a_lu* to incline, bend (Te.)(DEDR 5369).

Glyph: *malai* to oppose, fight (Ta.); *male* to oppose, fight against (Ka.); *malayu* to rage, wrestle (Te.)(DEDR 4741). *malla* wrestler (Skt.); *mal, mallam* wrestling (Ta.)(DEDR 4730; CDIAL 9907).
lat.ao to lie in wait, as a beat of prey, tiger (Santali)

mon.d.ol the headman of a village; a name of the Hindu caste sun.d.i (Santali)
mun.d.a a Kolarian tribe inhabiting the Chota Nagpur division; the Paharias of the Rajmahal hills; *kol mun.d.a, lar.ka mun.d.a* division of the Mun.d.a tribes (Santali) *mudi* a shopkeeper (Santali)

motm Kurumba village (Ko.); *mut* id. (To.)

Glyph: *mod.ha_mod.h, mod.a_ mod.* face to face (G.) *mun.d.amun.d.i* head for head; *mu~ha~ mu~hi~* face to face (Santali)
Glyph: *mund.e* to gore (Malt.); *mu~_d.na_ (mud.d.yas)* to strike or dash in one’s course against some obstacle (Kur.)(DEDR 5039)l

mun.d.a tank (Pa.Ga.Go.); bund, embankment (Kond.a); tank, bund (Pe.); tank, reservoir (Kui); *mund.a_* tank (Halbi)(DEDR 4945).

malkat.a a coalminer; *mal, maljal* goods, effects, merchandise; maldar owner, proprietor, wealthy (Santali)

mad.havum to encase with a metal leaf (G.)

ma_t.ai being bent downwards as horns of cattle (Ta.); *ma_t.a* cow with horns bent downwards (Ma.); *mat. et* bullocks with horns curving back (Ko.); *mo_d.e* ox or buffalo with curved horns (Tu.)(DEDR 4799). *ma_t.u* ox (Ta.Ma.)(DEDR 4798). *mad.avum* to bend; to incurvate; to incline (G.) *mad.avum* to make crooked (G.)

mad.a_ga_nt.h a fast knot; *mad.avum* to twist (G.) *mut.ai* to braid, plait (Ta.)(DEDR 4927).

*mad.hi_*, *mad.hud.i_* a hut, a shed, a cottage (G.)

Glyph: *me_lh* goat (Br.); *mr..e_ka* (Te.)(DEDR 5087).

mat.akku (*mat.akki-*) to engage as a servant, secure for oneself as an article or cargo (Ta.); *mod.x-(mod.xy-)* to keep lover (of either man or woman; not of Todas)(To.); mad.agu, mad.an:gu to lay down, place, put, take into one's service as a man etc., procure and keep for one's use as a horse etc., hire (Ka.); mad.aguni to lay, put down, place (Tu.)(DEDR 4644).

mad.ake earthen vessel for collecting toddy (Tu.); pot (Ka.); mad.ike pot (Ka.); mat.a_, mit.a_ large earthen vessel (Ta.); mat.akku a large, earthen plate (Ta.); mit.a_vu large waterpot (Ma.); mir..a_vu large pot (Ma.); mat.a pot (Kui); met.a chatty, pitcher (Malt.); mad.akka pot, pitcher (Pkt.); mad.ki_, mad.ke_ water-jar or pitcher (M.)(DEDR 4651). Image: pot: mad.ake, mad.ike a pot; mad.aki_, mad.aki_m a water-jar (M.); man.n.a mad.ake, us.t.rake, kad.ava mad.ake, manthani, gargari (Ka.lex.) matika_ earth, clay (Pali); mr.ttika_ (VS.); mat.t.i_, mat.t.ia_, mattiya_, mittiya_ (Pkt.); mat.hi_ earth, clay, brick (Dm.)(CDIAL 10286). *ma_t.a* an earthen pot (G.)

man.d.i earthen pan, a covering dish (Kond.a); cooking pot (Pe.); brasss bowl (Kui); basin, plate, bowl (Kuwi)(DEDR 4678).

ma~r. game killed at a hunt (Santali)

man.uko a bead; a gem (G.)

man.uko a single vertebra of the back (G.)

mad.iyo gravel; *mad.a* gravel, gravelly soil (G.) *mat.i* earth, soil; *mat.ia pathra* a kind of soft, slatey stone (Santali) *man.al* sand, gravel (Ta.); *man.l.* (Ko.); *man.al, mal.al, malal, maral, malar* (Ka.); *man.a* sand (Kod.); *man* id. (Pa.Ga.); *man.u* id. (Kond.a)(DEDR 4666b)

mad.a~gu, mad.u~gu to turn back, return (Te.)(DEDR 4645).

mar.k to subdue, make to obey (Ko.)(DEDR 4645). *mad.avum* to subjugate; to control; to make crooked (G.)

man.d.al.ika adj. a tributary chief; *man.d.al.i_* an assembly; a company; a meeting; a society, an association (G.)

man.d.al, man.d.al. disk or orb (fo the sun or moon); a circle; a ring; a circumference (G.)

mandoli a hollow ornament of various metals, worn usually round the neck and often filled with something in the nature of a charm; madoli a piece of bone of certain snakes is considered an effectual charm against lumbago. It is placed in the mandoli which is worn attached to a string round the waist (Santali)

me_d.a illu storied house (Kuwi); *me_r.a* upstair building (Kuwi); *met.a* whitewhashed storied house (Skt.); *med.aya* id. (Pkt.)(DEDR 4796). *me_r.a* mide terraced building (Kond.a); *mettai* storied house, upper story (Ta.); *metta* terrace (Ma.)(DEDR 5069) *mad.hi_, kad.hud.i_* a hut; a shed; a cottage (G.) *mat.h* A monastery (G.)

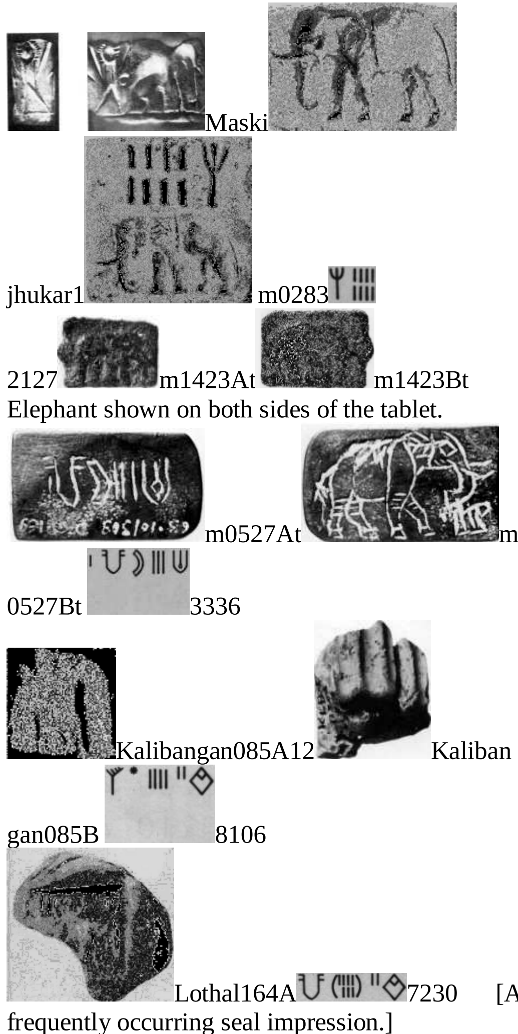
mad. – (mad.i-) to do; *ma.d.i* burned clearing in jungle where grain is grown (Kod.); ma_r. to make (Go.); *ma_r.uka* to build, construct (Ma.); *mat.m* fashion of doing things (Ko.); *ma_d.u* to do, make, perform, manufacture, construct, build, execute, cultivate as a field; n. doing, making (Ka.)(DEDR 4797).

mat.al eyelid (Ta.); *mat.a* eyelashes (Pe.); *kanu mat.a* eyebrow, eyelid (Kuwi)(DEDR 4650). *me~t kut.i* the eyebrows (Santali)

mat.al blade of a weapon (Ta.)(DEDR 4663).

Substantive: *mad.aka_* plough with bullocks complete (Te.); *mad.ike* a kind of harrow or rake (Ka.)(DEDR 4656).

Elephant



Maski

jhukar1 m0283

2127 m1423At m1423Bt

Elephant shown on both sides of the tablet.

m0527At m0527Bt 3336

Kalibangan085A12 Kalibangan085B 8106

Lothal164A 7230 [A frequently occurring seal impression.]

Substantive: *ib* iron (Ko.); needle (To.); *irimbi* iron (Kod.); *inumu* id. (Te.); *inum* iron, sword (Kol.); *rumba vad.i* ironstone (Kui); *irumpu* iron, instrument, weapon (Ta.); *irumpu, irimpu* iron (Ma.)(DEDR 486). *vad.i, vali* stone (Kui); *mesi-val* whetstone (Go.); *vwalli, valli, vali* (pl. *valka*) stone (Kui)(DEDR 5285). Cf. *bali* iron stone ore (Santali)

Substantive*: imbu* a halting or resting place, home, place, space, room (Ka.); *imba* width, breadth (Ka.); *imbu* place, room, space, refuge, opportunity; broad, wide (Tu.); *immu* a place, home, room, space; convenience (Te.)(DEDR 467). Iruppu seat, residence, merchandise, wares (Ma.); *irippu* sitting, residence, position (Ma.); *irpga.rn* rich man (Ko.); *iravu, irapu* being, staying, resting state; irke, ikke being, abode, seat, place (Ka.); iruvu neighbourhood, place, home (Te.); *re'nai* to abide (Kuwi)(DEDR 480).Glyph: *ibha* elephant (Skt.) *ibo obo* thick and heavy, fat (Santali)

karat.i = an elephant (Te.lex.)

> **e_nu** (pl. –l) elephant (Pa.); **e_nu~gu, e_nika, e_niga, e_nige, e_nuga** elephant (Te.); ena_gi_, e_ngi (Kol.); e_nagi_ (Nk.); e_nig (Ga.); ye_ni_, aini_, e_nal, e_ni, e_n (Go.); e_ngu, e_ni (Kond.a); ya_n-ai, a_n-ai (Ta.); a_na (Ma.); a.n (Ko.); a.n (To.); a_ne, ya_ne (Ka.); a.ne (Kod.); a_ne (Tu.)(DEDR 5161).

e_nu one edge of a blade of hoe or spade (Te.); **e_n., e_n.i** boundary, limit (Ta.); **e_n.u** edge, chiefly the three edges of the coconut (Ma.); **e.n.er** edge (Ko.); **e_n., e_n.u** edge, border, point (Ka.)(DEDR 886). **<u>Barber</u>**: **e_n-a_ti** barber; name of a division among Sha_n.ans (Ta.); **e_na_di** barber (Te.)(Ta.lex.) **<u>Soldier</u>**: **e_n-a_ti** an ancient title conferred by a king on his minister (**Man.i. 22,205**); general; soldier, warrior; **e_na_ti-mo_tiram** ring being the insignia of the title of **e_n-a_ti** (**Ci_vaka. 2569, Urai**)(Ta.lex.) cf. **se_na_di** (Skt.lex.) **e_n-am** tool (Ta.); **e_nam** tool (Ma.)(DEDR 918). **e_nu** one edge of a blade of hoe or spade (Te.); **e_n. e_n.u** edge, point (Ka.); **e.ner** edge (Ko.); **e_n.u** edge, chiefly the three edges of the coconut (Ma.); **e_n. e_n.i** boundary, limit (Ta.)(DEDR 886). **e_n., e_n.am, e_n.ai, e_t.ci** firmness; **en.** strength (Ta.); **e_n.am**

steadfastness (Ma.); **e_n.u** energy, firmness, stability (Ma.)(DEDR 886).

Some Assyrian/Akkadian lexemes

a_ru = offspring, child
erimu = foe
a_ru = enemy (lit. one marching against another) (Akkadian/Assyrian)
arru, irru = sling, fetter; aru_ = outfit, harness
arxu = ox
arxu, uruxxu = way
araku = arrange, fit out; erikku = outfit
urgu_, urku_ = title of an officer
ur-ra-ku = stone mason [urraku_tu = sculpture]

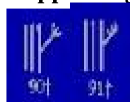
ebru = corn, food (a-ru = germ, sprout, flower, blossom)
ebru = friend

uru = animal

uru, eru = settlement, city
armu = ibex, mountaingoat (W. Muss-Arnolt, *A concise dictionary of the Assyrian language*, Berlin, Reuther and Reichard, 1905).

If the rebus principle is used to explain the glyphs of Assyria or Akkadia showing, say, a lion attacking a bull or a tiger with wings of an eagle, these Assyrian/Akkadian lexemes may point to the glosses which lead us to the homonyms.

Copper or griddle, three long linear strokes


Signs 90, 91 On many epigraphs, three long linear strokes (with or without ligatures) appear in contexts connoting the glyph as a lexeme (and not a numeral count).

Glyph: **tebr.a** = three; rebus: **ta(m)bra** = copper
Alternative: Glyph: **pene** 'three'
Substantive: **penamu** = griddle, metal plate or pan for baking (Te.) **pen.i_** a frying pan (G.); pahen.ayam = Skt. bhojano pa_yanam, a cooking vessel; Hem. Des. pa-i-n.o = broad (G.)
Glyph: plug: **ben.e** peg, plug, stopple, cork (Ka.); **bu_n.a** peg, wedge (Tu.)(DEDR 4396).


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Arrow,  **Sign 211**

3810.Image: boatman's pole: callam boatman's pole (Ma.); jallu id. (Ka.); jalla id. (Tu.)(DEDR 2380). jalle, jar..ave a bamboo pole; a sugar-cane (Ka.); jalle cane of sugar (Kod..)(DEDR 2383). cel. long, round stick, stick of fairly large size (Ko.); sel.e twig, small branch, stick, rod, also one for training or punishing children; to cane with a stick; cal.l.u, cel.u, cel.l.u, sel.l.u a long flexible twig or rod (Ka.); jal.e long thin pliable stick; (jal.ev-, jal.and-) to sway like a long pliable stick; jal.a- (jal.ap-, jal.at-) to make sway (Kod..); cil, s'il a fishing-rod (Tu.); sela twig (Te.)(DEDR 2790). Image: pitchfork, fishing rod; spiked stick: [The image is related to pearl fishery: a forked lance, to hook a mother-of-pearl shell]: salage (Tadbhava of s'ala_ke) a javelin, a dart (Ka.)(Ka.lex.) s'alyas'an:ku spiked stick (Skt.); salhan:g, salhan:ga_, salan:gh, salan:gha_ small pitchfork (P.)(CDIAL 12355). s'ala_ka_ small stake (S'Br.)(CDIAL 12355). cf. sa~_gi_ pitchfork (P.)(CDIAL 12260). [The etyma with consonants csp semantics: oyster shell] and the associated images of the spiked stick and lance cil- clash resulting in the description of the business of pearl fishery]: s'ila_pam pearl fishery (Ma.); sala_pam id. (Ma.); sala_pamu id. (Te.); cala_pam, cila_pam id. (Ta.)(DEDR 2369). cala_pam pearl fishery (S.I.I. iii,145); cala_patturai id. (Ta.lex.) Image: bow: cila bow (Ma.); cilai id. (Ta.)(DEDR 2571). Image: arrow: gi'erri arrow shaft (Kuwi); keeri arrow (Kui)(DEDR 1932). Images: fork; dart: cil.l.u a fork (Te.); cil.l.a bifurcated (Te.); cella, jella branch, bough (Pa.); cil.l.e a fork (Ka.); cil branch of a tree

(Ko.); cilla small branch of a tree (Ma.)(DEDR 2587). s'ili_ dart, arrow (Skt.); s'e_lla (<? s'ailya), se_la, se_lla a kind of weapon (Skt.); s'ili_pr.s.t.ha epithet of a sword (MBh.) > sil (Persian.Psht.); sil spear, arrow (Ash.); siu spear (Kal.); s.il id. (Wg.Gaw.); sel arrowhead (K.); sella, silla spear, arrow (Pkt.); se_l spear (Wg.); sel (Kal.); selhu large thorn (S.); sel long spear (P.); sela_ spear (P.); xel dart, stake (A.); sel dart, javelin, spit (B.): sella, helle_ (pl. hella) spear, dart (Si.)(CDIAL 12466). cili_mukam arrow, ampu (cilai-y-itu cili_muka-n-kal.ivai (Parata. Tirau. 31); bee; nipple of woman's breast; battle, fight (Ta.lex.) cili_muka-k-kai hand-pose in which the tip of the thumb touches the first line of the forefinger and the tips of the other fingers touch the palm (Ta.lex.) sili_muha arrow (Pkt.); silimuva_ bee (Si. < prob.Skt.); s'ili_mukha arrow (MBh.)(CDIAL 12469). For semant. 'bee' cf. cil.-van.t.u cricket (Ta.)(DEDR 2588). Image: arrow; lance, javelin, sharp stick to dart a fish: cilukku iron staple, tooth of a saw, barb (Ta.); spike, iron barb, javelin (Ma.); cille_li a sharp stick to dart (sic) a fish with (Tu.); cillako_la lance, javelin (Te.); ciluku, sela arrow (Te.); selago_la goad (Te.); selapandi porcupine (Te.)(DEDR 2568). [cf. s'alyaka porcupine (VS.); sallaka porcupine (Pali); salla_ armadillo (L.); sellaga porcupine (Pkt.); -sayake prob. porcupine (As'.); ka~_t.a_-sariyo hedgehog (G.)(cf. kan.t.aka thorny and ka~_ porcupine (Pas'.)(CDIAL 12353; poss. non-Aryan origin). ey, ey-p-pan-r-i porcupine (Ta.); s'e_d id. (Kol.Nk.); ce_dir (Pa.); e_du, e_du-pandi (Te.)(DEDR 2776). cf. s'va_vidh porcupine (AV.); se_dha, se_ha (Pkt.); seh, si_, si~_h (H.)(CDIAL 12766).] jhi~k the Indian porcupine (Santali.lex.)

Image: arrow: s'aru missile (RV.); arrow (AV.); s'ur arrow (Kt.); sari_ straight like an arrow (P.); sara arrow (Or.); sar (Mth.); sara (OAw.); sar (H.); sara (OMarw.); sar (G.); sara, sara-ya (Si.)(CDIAL 12336). s'ara reed from which arrows are made (RV.); the reed saccharum sara, arrow (Mun.d.Up.)(CDIAL 12324). s'arya arrow (RV.); s'e_ra, s'a arrow (Kal.)(CDIAL 12339). s'alya arrow, javelin (RV.); salla arrow, dart, piercing sting (Pali); spear, javelin, thorn in body (Pkt.); s'al spear; s'il (Ash.); s'al (Bshk.); salu hole (S.); sall dart, perforation, hole (P.); xa_l spike, wedge; xli thin long slip of bamboo or iron etc. (A.); sa_l impaling stake (B.); sa_la thin projection of wood fitting into mortise, tenon (Or.); sa_l thorn, pang, pain (Mth.); thorn, pain, hole made in ground by a spike (H.); tenon, cause of pain, impediment (G.); splinter remaining in flesh (M.); sala arrow, spear (Si.)(CDIAL 12352).

A synonym, salla = spear [or, a ligatured pole]

> *kod.a*, *kor.a* professional digger; an aboriginal tribe cognate to the Santals, and speaking a similar language; *kod.ra* to scourge; *khot.rao* to scrape out of a hollow, to gouge (Santali)
>
> *kottan-* mason (Ta.); *kot* to peck (Ko.); *kothke* to peck or strike with the beak, sear with a hot iron (Malt.)(DEDR 2091).

Association of elephant and eagle

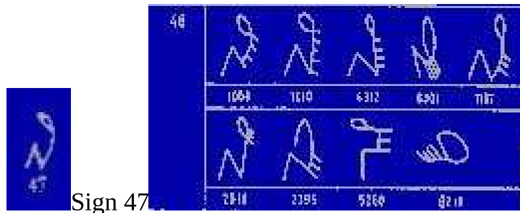
Elephant glyph: *ibha* + *s'un.d.* (elephant + trunk); rebus: *ib* (iron) + *sun.d.* (furnace)
Eagle: *pajhar.* (eagle); rebus: *pasra* (smith's forge)

Thus, the elephant and the eagle may represent two types of furnaces: a furnace and a brick kiln.

pagar = a water channel; pagrao = to construct a water channel, to lead water by clearing a way for it (Santali.lex.)

panjhet.i_ = a farmer's tool; a harrow; a rake (G.lex.) [Note the harrow glyph].

pan~ja = heap, pile (Pali.lex.) **pagar** = a heap of corn; pagor = a heap of ears of corn, made to separate the grain from the husk (G.lex.) [Note the glyph of a hayrick within a platform on which the horned person with armlets sits].


Sign 47

<u>Offerings; provisions</u>: cf. pa~_ji_ offering of food to a ghost (M.)(CDIAL 8251). pacakku substance (Ta.Na_.); pacai-tal to gather, get ready as necessary materials (Tiv. Iyar-. 3,64); paccai offering to a superior or a deity (I_t.u, 5,1,3); present as to a newly married pair (Ci_vaka. 823, Urai.); tribute (I_t.u, 4,1,1); compensation, return (I_t.u, 2,3,4); provisions (I_t.u, 1,6,1); profit; pacumpatam raw materials for food (Pat.t.in-ap. 203); paccai-k-kaliya_n.am ceremony on the fourth day in a marriage festival, as the time of presenting gifts (Ta.); paccai-kat.t.u trifling presents, commonly to the headman of a village (Ta.lex.)

pan~ca ricefield (Ma.Tu.)(DEDR 3834). *pacat.i* to make a beginning with rice planting; *tehen:ko pacat.i akata* they have planted the first rice of the season today (Santali)

pacar a wedge driven into a wooden pin, wedge, to tighten it (Santali)

pachr.ao pachr.a pachr.i to be thrown down, overcome (Santali)

ko_lemmu = the backbone (Te.lex.)

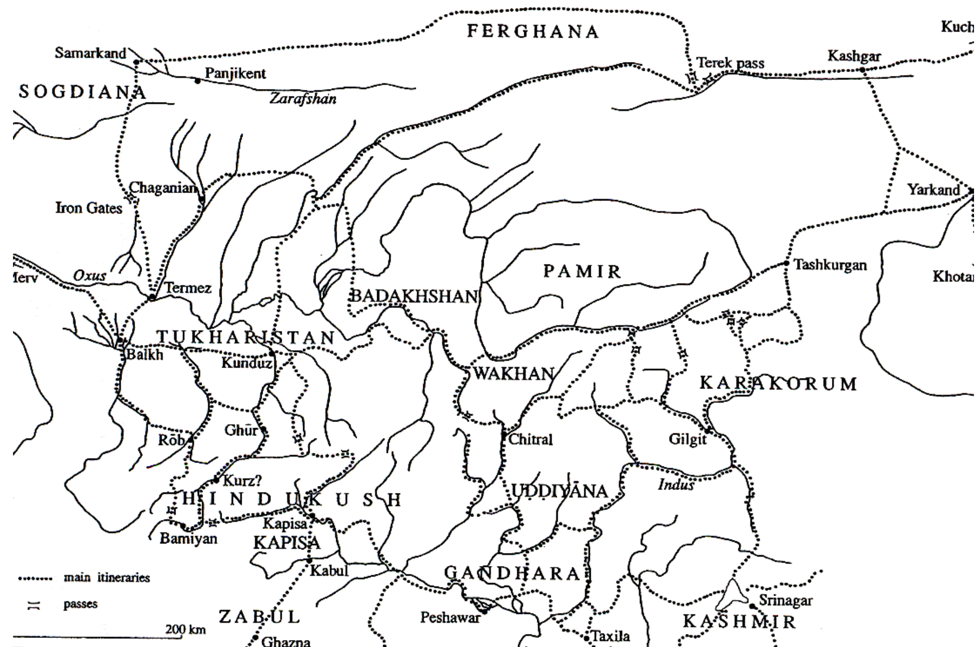
kolhe 'smelters of iron'**; kolimi** = a furnace; kolimi-titti = bellows used for a furnace (Te.lex.)

arara an awl (Skt.lex.) **ara, arna** a file (Ka.); **ara** (Tu.Ta.Ma.) (Ka.lex.) **<u>Grinding, polishing, sharpening</u>**: **aram** file, rasp (Ta.); **ara_vu (ara_vi-), ira_vu (ira_vi-)** to file, polish, rub, grate (Ta.); **aram** file (Ma.); **ira_vuka, ra_kuka** to file (Ma.); **arm** (obl. **art-**) file (Ko.); **ara, arna** id. (Ka.); **ara** id. (Tu.)(DEDR 228).

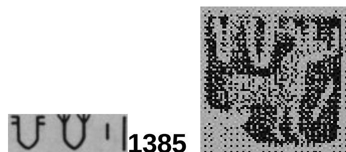
vallu_r-u royal falcon, falco peregrinator (Tan-ippa_.i,171,23)(Ta.); vallu_r-r-ukkuruvi id. (Ta.lex.) **va_re(n)jan** = falcon (Avestan).

d.e_ge a hawk, a falcon (Ka.Te.)(Ka.lex.) t.e_kai a wild bird (Ta.lex.)

kelur..an- < garud.a Garud.a (Ci_vaka.1926) (Ta.lex.) garud.a_ eagle (Kon.Skt.lex.) cf. **glez** kite (WPah.)(CDIAL 4231) kalur..an- < garud.a eagle (Kampara_. Tiruvava. 13)(Ta.lex.) **karu** eagle, vulture (Tu.); kar..uku, kar..u (Ma.Ta.)(Ka..lex.) 2300.Image: vulture: **garud.** eagle (Kon.lex.) karu vulture (Tu.); kor.l. kite (To.); kal.u vulture (Tu.); kar..u, kar..uku griffin vulture, gyps indicus, pharaoh's chicken neophron gingimanus, eagle (aquilinae falconidae)(Ta.); eagle, vulture (Ma.); kar..ukan id. (Ma.)(DEDR 1362). kar..u, kar..uku griffin vulture, pharaoh's chicken, eagle (Ta.); eagle, vulture (Ma.); **kor.l.** kite (To.); karu, kal.u vulture (Tu.)(DEDR 1362). **garud.a** a mythical bird (Mn.); garul.a (Pali); garud.a, garula (Pkt.); garar. the bird ardea argala (P.); garul eagle (N.); gar.ur (Bhoj.); garura blue jay (OAw.); garur. hornbill; garul a large vulture (H.); gurul.a_ bird (Si.); gor_ve_lik kite (Kal.)(CDIAL 4041). ku_l.i large species of eagle (Ta.); gu_l.i vulture (Te.)(DEDR 1920). **kurara** osprey (Ya_j.); kurala (Skt.); kurara, kurala (Pali); kurara (Pkt.); kurala, kurali_, kurura (Pkt.); kurla (S.); kural (L.); kurl (P.); kuruwa_ (A.); kurar, kural (B.); kurara, kurari_, **kural.a**, kurura, kururi_, kurul.a (Or.); kurari_ (Mth.); kuraraya_, kuralaya_ sea-eagle (Si.)[kurara = kirala_ lapwing](CDIAL 3323). kuvaya a partic. kind of bird (MaitrS.); kvayi (TS.); kuhi_ a bird of prey smaler than a hawk; ku_hi_ a bird of the hawk tribe (H.); ku_i_ hawk (H.)(CDIAL 3356). Image: heron: gar.u_r a sort of black heron (Kur.); gad.ure the adjutant bird, a crane (Malt.)(DEDR 1155). cf. kolor a kind of heron (Pa.)(DEDR 1808).



Central Asia and Northwest Bharat in the 5th to 8th centuries (After Kuwayama, Literary evidence in dating the colossi Bamiyan, in G. Gnoli and L. Lanciotti (ed.), *Orientalia Iosephi Tucci Memoriae Dicata*, 2: 703-27, Roma. 1987).

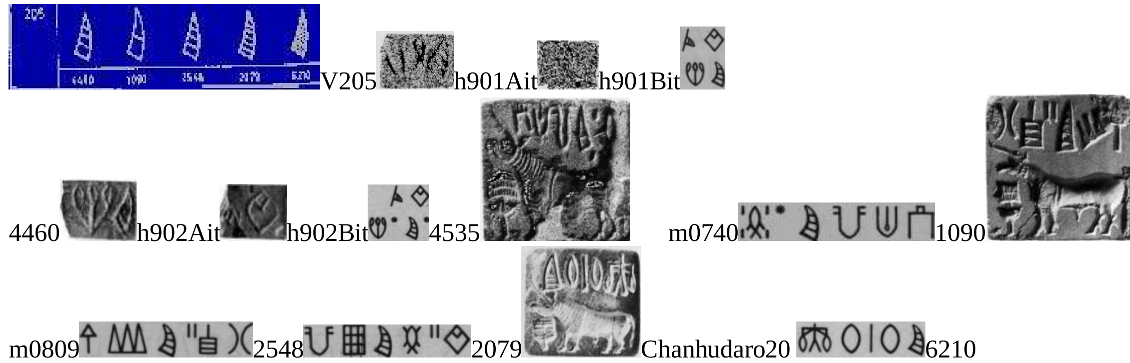


1385 Pict-49 Uncertain animal with dotted circles on its body, a boar's tusk ligatured to the nose and a dotted circle for the eye.

Glyph: *merom* a goat; *merom hopon* a kid; *merom me~t* the goat's eye, name of two plants: *izora parviflora* and *olax naua* (Santali) *hon, hopon* child, young of any animal (Santali)

Substantive: *me~r.he~t* iron (Santali)

Glyph: *son.d.* 'tusk of boar' (Santali)



V205 h901Ait h901Bit

4460 h902Ait h902Bit 4535 m0740 1090

m0809 2548 2079 Chanhudaro20 6210

Glyph: *cun.t.u, con.t.u* bill, beak (Ta.Ma.); *cun.d.u* a bird's beak (Ka.); *sud.a* mouth, beak, brim (Kui); *sond.e* lip (Go.); *cond.i* beak of bird (Pe.)(DEDR 2664).

Glyph: *cot.t.a* ornamental dot on knife-handles etc. (Ma.); *cot.t.ai* a knob-like contrivance for hanging anything (Ta.)(DEDR 2839).

Glyph: *son.t.a* hip, loins, waist (Ka.); *son.t.a, on.t.a* id. (Tu.); *ton.t.i* loins, hip (Te.)(DEDR 2840).

Glyph: s*un.d.* 'trunk of elephant'

Substantive: *sund* 'pit (furnace)'; *sum, sumbh* a mine, a pit, the opening into a mine, the shaft of a mine; sum bhugak the entrance to a mine, pit's mouth (Santali). s*un.d.i* a semi-hinduised aboriginal caste; this caste are the distillers and liquor sellers; *sun.d.i gadi* a liquor shop (Santali) *cun.d.* to boil away (Ko.); *sun.d.u* to evaporate (Ka.); *cun.d.u* to be evaporated or dried up (Te.); *s'un.t.hi* to become dry (Skt.)(DED 2662).

Glyph: *su_nd gat.* knot of hair at back (Go.); *cundi_* the hairtail as worn by men (Kur.)(DEDR 2670).

Glyph: to seize: *sum* to seize (Kol.Nk.); *cumm* to seize, catch hold of (Pa.)(DEDR 2679).

Alternative:
Substantive: *eruvai* copper, blood (Ta.); *ere* a dark-red or dark-brown colour (Ka.)(DEDR 817). *ere* black soil (Ka.)(DEDR 820). *ke~r.e~ ko~r.e~* an aboriginal tribe who work in brass and bell-metal (Santali) *ker.e sen:gel* fire in a pit (Santali)
Substantive: *araka* a plough with bullocks complete (Ta.); *are* a plough (Malt.)(DEDR 198).
Glyph: *garud.a* eagle (Skt.)
Substantive: *gara_d.o, gara_d.* a ditch, a pit (G.)

Substantive: *garad.o, garod.o* A priest of the pariahs (G.)

Substantive: *kut.hi* 'a furnace for smelting iron ore, to smelt iron'; *kolheko kut.hieda* koles smelt iron (Santali)
Glyph: *kur.it* the pariah kite, mivus migrans govinda (Santali)

Inscribed objects showing the ligature of a serpent-like tail and the depiction of hooded snake

Ligaturing components resulting in the composite motif:

artisan's workshop and hearth (bed.a) for: copper, steel, beads, iron

*pagela_* a harmless snake (Ka.); *pagele* a kind of harmless snake (Tu.)(DEDR 3809). [Ligaturing element in a composite animal; hence, rebus substantive: *paghal* 'steel'.]

damr.a 'heifer, steer'; *ta_mbra* 'copper'

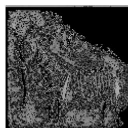
sun.d. 'elephant trunk'; rebus: *sun.d.* 'a pit (furnace)'

Glyph: kan.t.hla_ (H.) kan.d.hli_ (P.) = ring round the neck; necklace of beads(See the rings on the neck of the bull)
kot.iyum a wooden circle put round the neck of an animal (G.)
Substantive: kan.d.hli_ (P.) = necklace of beads kandi = necklace, beads; kandl = beads (Ga.)

kol 'tiger'; *kolhe* 'smelters of iron'

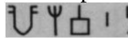
> **kol** metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

bhed.a 'ram'; *bed.a* 'either of the two ends of a hearth' (hence, hearth)
kod. 'horns'; *kod., kod.iyum* 'place where artisans work'

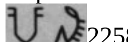

m0299 Composite animal with the body of a ram, horns of a bull, trunk of an elephant, hindlegs of a tiger and an upraised serpent-like tail.

1381


m0300 Pict51: Composite animal: human face, zebu's horns, elephant tusks and trunk, ram's forepart, unicorn's trunk and feet, tiger's hindpart and serpent-like tail.

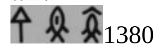
2521


m0301 Composite motif: human face, body or forepart of a ram, body and front legs of a unicorn, horns of a zebul, trunk of an elephant, hindlegs of a tiger and an upraised serpent-like tail.

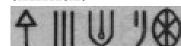
2258



m0302 Composite animal with the body of a ram, horns of a bull, trunk of an elephant, hindlegs of a tiger and an upraise serpent-like tail.

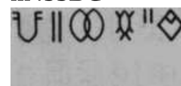
1380


m0303 Composite animal.

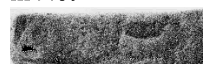

2411


m 0453At

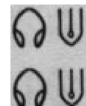

m453BC


1629 Pict-82 Person seated on a pedestal flanked on either side by a kneeling adorant and a hooded serpent rearing up.


m448t


m449Bt


m449AC

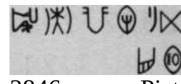

2836


m0481At


m0481Bt

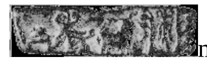

m0481Ct

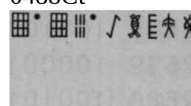

m0481Et

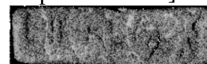

2846 Pict-41: Serpent, partly reclining on a low platform under a tree


m 0488At


m 0488Bt

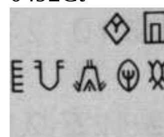

m 0488Ct


2802 [See side b showing the composite animal with an upraised serpent-like tail]


m0492At


m0492Bt Pict-14: Two bisons standing face to face.


m 0492Ct

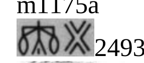

2835 Pict-99: Person throwing a spear at a bison and placing one foot on the head of the bison; a hooded serpent at left.


m0571At



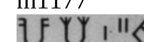
m0571Bt
2913 Horned elephant. Almost similar to the composition: Body of a ram (with inlaid 'heart' sign), horns of a bull, trunk of an elephant, hindlegs of a tiger and an upraised serpent-like tail


m1175a

2493


m1176


m1177

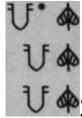

2450


m1430Bt


m 1430C


m1430At Pict-101:

Person throwing a spear at a buffalo and placing one foot on its head; three persons standing near a tree at the centre.



2819 Pict-60: Composite animal with the body of an ox and three heads [one each of one-horned bull (looking forward), antelope (looking backward) and bison (looking downwards)] at right; a goat standing on its hindlegs and browsing from a tree at the center.

Substantive: *kabbin.a* iron (Ka.); *karba* iron (Tu.) *ka~r.ba* a plough handle; *ka~r.ba nahel* plough and handle in one (Santali)
Glyph: *kar.ban: kur.ban:* serpentine, crooked (Santali) [The glyph: elephant (ibha) + trunk (sun.d.) rebus: *ib* 'iron stone'; *sund* 'pit']

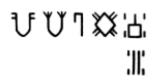
Substantive: *sund*, 'a pit'; *sum*, *sumbh* 'a mine, a pit, the opening into a mine, the shaft of a mine' (Santali) cf. *ku~n.d.* 'pit' (Santali) *yajn~a kun.d.am* (Skt.)

Substantive: *ve_l.* 'to offer sacrifices' (Ta.); *be_l.* 'to offer into fire' (Ka.); *belcad.e* a devil-dancer (Tu.); *ve_lucu* 'to put or throw in a sacrificial fire' (Te.); *ve_limi* 'oblation' (Te.)(DEDR 5544).
Glyph: ve_r..am 'elephant' (Ta.)

Glyph: *sun.d.* 'an elephant's trunk'(Santali) Glyph: *son.d.a* 'a tusk, as of wild boar, elephant' (Santali)

sonda 'a bill hook, for cutting firewood' (Santali) *sun.d.* 'the uvula of human beings' (Santali)

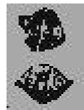
Frog


2045  Pict-40: Frog.

ror.a 'small stones, gravel'; Glyph: *rot.e* 'a frog, a toad'

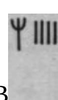
s'ala = dart, spear; s'ala_ a small stake or stick (TBr. 3.6.6)(Vedic.lex.)
s'alla = a frog (Skt.lex.)

Tortoise

 FS 70: Inscribed object in the shape of a tortoise

 h241A  h241B  4663 Pict-69: Tortoise. *kumd.hia* horo 'a species of tortoise' (Santali)

 h337A  h337B  4417 Pict-79: Inscribed object in the shape of a leaf. Dottec circle on obverse.

 h338A  h338B  4426 Pict-39: Inscribed object in the shape of a tortoise (?) or leaf (?). Dotted circles on obverse.

kul.ir battle-axe; trident; sickle (kul.irpurai kot.un:ka_y : Malaipat.u. 110); knife for cutting the stems of leaves (Ta.lex.) cf. kulis'a or s'u_la (Skt.) kor..u awl (Tol. Pa_yi. Urai)(Ta.lex.)

kurul.ai tortoise (?Ta.)(DEDR 1795). horo, kat. horo, kumd.hia horo tortoise (Santali.lex.) kurul.ai tortoise; young of certain animals (dog, pig, tiger, hare, jackal); young of a snake (Ta.lex.) ku_rma tortoise (VS.); kumma (Pali.Pkt.); ku_rmi_ (MBh.); krum, krumu, kurm (K.); kumi_ tortoise, turtle (S.); kar.-kumma_ tortoise (L.); kar-kumma_ turtle (L.); kumma~_, kummi~_ tortoise, turtle (P.); kumu tortoise (Si.)(CDIAL 3414). Roof: kaurma appertaining to a tortoise (Skt.); kum portion of a roof midway between ridge-pole and eaves (A.); klo_m roof (Ash.); krum (Kt.); **krem** back (Kho.); lu_nd roof; kundu_r, s.ond, tu_n, te_n, plen, obl. plende (Pas'.)(CDIAL 3415).

Glyph: *vahur.o* young bullock (S.); *vohur.* heifer (L.); *vahar.*, *vahir.* heifer (P.);(CDIAL 11459). *paghaia d.an:gra* a pack bullock (Santali)

Substantive (trader) *vahoro*, *vohharo*: *vahoro*, *voro* (Hem. Des. *vohharo* = Skt. *ma_gadha* a mixed tribe, a bard) a trader, a *bora_*

khon.d. = a square (Santali.lex.) **ku_t.ara** = a hornless animal; **ku_t.a** = an ox whose horns are broken (Ka.lex.) gutrut = a deer that has lost his horns (Santali.lex.)

ibha s'un.d. elephant + trunk; *ib* iron + *sund* furnace pit

kot.iyum a wooden circle put round the neck of an animal (G.)
kot.iyum a canoe, a small boat; kot.d.i_ a room (G.)

Ligatured animal, headless trunk: gu~n.d.

Glyph: *gu~n.d.* trunk of body without head, applied principally to the bodies of animals which have been killed in sacrifice by beheading (Santali)

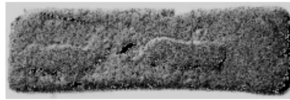
Glyph: s*un.d.* 'trunk of elephant'
Glyph: *son.d.* 'tusk of boar' (Santali)
Substantive: *sund* 'pit (furnace)'.

Glyph: *ke.l.e, ko.l.e* barking deer (Ir.); *ke.yi* id. (A_lKu.); *ke.y* wild goat (Ko.); *ko.g* barking deer (To.); *ke.me* id. (Kod..)(DEDR 2016). *kel.i* sheep; ewe three or four or more years old (Kho.); **kaid.ika_ (ka_-, e_d.a-)* a small sheep (CDIAL 3476).
[The cognate phonemes: *kolum* 'tiger' and *ke.me* 'deer'; *ko.l.e* id. May indicate the reason why these are the only two animals which are orthographically depicted with their heads turned backwards, in a wry fashion: Substantive: *khokrao* 'to carve, to cut out, scrape, gouge, hollow out' (Santali) Glyph: *kokr.e* 'to carry the head sideways, wry-necked' (Santali)] Thus, a tiger or an antelope with head turned backwards may connote a forge where carving work is done.

Alternatives (copper or alloyed metal):

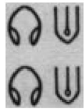
kol metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

melukka 'copper' (Pali); rebus: **melh** 'goat' (Br.)

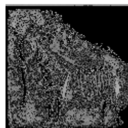
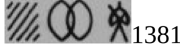
m448t

m449Bt

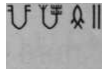
m449AC

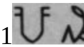
2836

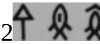
*xola_* (Kur.) = tail; *kolu* = royal presence (Ta.)

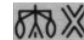
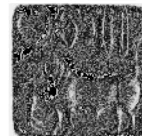
m0299 Composite animal with the body of a ram, horns of a bull, trunk of an elephant, hindlegs of a tiger and an upraise serpent-like tail. 1381

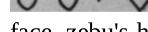
 m0571At  m0571Bt

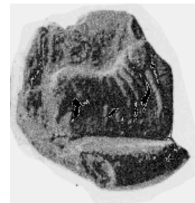
2913 Horned elephant. Almost similar to the composition: Body of a ram (with inlaid 'heart' sign), horns of a bull, trunk of an elephant, hindlegs of a tiger and an upraised serpent-like tail

m0301

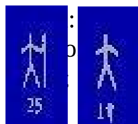
2258m03021380

 m1175a 2493 Composite animal: human face, zebu's horns, elephant tusks and trunk, ram's forepart, unicorn's trunk and feet, tiger's hindpart and serpent-like tail. m1176  m1177

2450 Composite animal: human face, zebu's horns, elephant tusks and trunk, ram's forepart, unicorn's trunk and feet, tiger's hindpart and serpent-like tail.

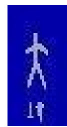
h168

pan.ai drum, large drum (Ta.); *pan.e*, *pan.a* small drum or tabor (Ka.); *pan.ava* (Skt.)(DEDR 3893; CDIAL 7716).

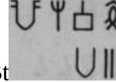


: *lum* 'a step, the distance between the two feet in walking; a pace (G.) *ta_k* to walk *n:g* to walk (Pe.); *ta_n:*, *ta_ka* act of walking (Mand.)(DEDR 3151). *t.an:kam* mace *e*, *d.an:ke*, *d.an:gi*, *d.an:ge* staff, cudgel (Ka.)(DEDR 2941).
Glyph: *d.okke* the body (Ka.)(DEDR 2976).

Rebus glyph is: *me~_d, me_d* 'body' (Kur.); *meth* body (Malt)(DEDR 5099). Sign 1 occurs 131 times on epigraphs.



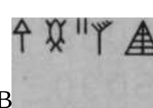
phot., kan.d.(kanka), bakher 'copper (ingots), (copper) furnace, homestead'
[glyphs: ear or corn, rim of pot, teeth of comb]

h733At h733Bt 5222 h755At

5287 h752At 5275 [At least 16 inscribed objects with epigraphs contain the sequence of last three signs (Statistics Mahadevan corpus; the first two of these signs (read from right) in Text 5287 pair in 88 epigraphs]

Substantive: *dar* 'a trench'; Glyph: *dare* 'a tree' (Santali)
Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)
Substantive: *sal* workshop (Santali)

Sharpened metal tool or python entwined around a pillar[12]

h254A h254B 5214 Is the sign on h254A a stylized representation of the standard device? The inscription is among the most frequently occurring on tablets in bas relief. (The first sign from r. on h252A is a roof over the pillar with ring-stones; the obverse has a one-horned bull pictograph)

Glyph: **tambu** [Skt. stambha, a pillar, a pole, fr. stambh, to be stiff] a movable lodging place made of canvas extended upon poles; a tent; a pavilion (G.lex.) tambu = a tent (Ka.M.); tambu_ (H.)(Ka.lex.) tambu = a tent (Santali)

tamba = copper (Santali) tam(b)ra = copper (Skt.)

tamro = a precious stone (Santali.lex.)

tamba_ku = an alloy of copper and other metals (Te.lex.) [cf. ba_ku = a dagger (Te.lex.)]

Alternative: **buru d.an:gra** = the jambr.o or python (Santali.lex.)
buru = a spirit, an object of worship, synonym of bon:ga; maran: buru = the chief of the burus, or bon:gas; **buru** = a mountain, hence **buru d.an:gra** may connote a mountain python.

Rebus: **d.ha~gar '**blacksmith'

bata_ bamboo slips (Kur.); **bate** = thin slips of bamboo (Malt.)(DEDR 3917).

hadi = a layer of stone or brick in the ground (Ka.); **padre** a layer (Ka.); **paduru** = id., stratum (Tu.)(DEDR 3915). [Note glyph of ringstones on pillar on tablets in bas-relief.]

Substantive: **patam** = sharpness (as of the edge of a knife)(Ta.); padm (obl. Padt-) temper of iron (Ko.); pada = keenness of edge or sharpness (Ka.); **hada** = sharpeness (as of a knife), forming (as metals) to proper degree of hardness (Tu.); panda_ sharpness (Go.); padanu,

padunu = sharpness, temper (Te.); padnu = sharpening (of knife by heating and hammering)(Kond.a); pato = sharp (as a blade); **patter** = to sharpen (Malt.)(DEDR 3907).

An inscription on tablets in bas-relief recurs on 30 tablets in bas-relief, see for example: h-860 to h-870 (Freq. 30).

Glyphs on Gundestrup Cauldron and parallels with Sarasvati hieroglyphs

One of the vivid images of the Gundestrup cauldron is a person seated in penance or in a yogic posture, holding a snake in his left hand. The 'snake' pictograph is equally vivid on the inscribed objects of the Bharatiya (Sarasvati) civilization. While browsing a number of 'pictographs' on inscribed objects and attempting to match the 'pictographs' with 'sound-bites' drawn from the lexemes of Bharatiya civilization (Vedic, Mun.d.a and Dravidian languages -- of the extensive linguistic area), an assumption was made that the inscriptions 'convey' metal weapons, tools and equipment of a warrior or a metalsmith -- either as property items possessed by the holder of the object or used as bills of lading of these products traded.

Some of the images on the Gundestrup cauldron, almost all of which have parallels on many inscribed objects of Indian civilization (ca. 3500 to 1500 BC) will be evaluated further in archaeo-philological terms.

The smith, the weapons

"VORTA, THE SMITH: It's always the same isn't it? Them that does the least shouts the loudest. What does meat give? - it gives strength - who needs strength most? - the smith does. Who makes the swords and the spears, the hammers and the tongs? Who sheds the wheel, and what cuts the meat? the knives I have fashioned - bent double all my life over the hot fire. Without iron we'd be nothing, hacking the ground with stones - there's no battle won without my sharp blades, no fast horses without my shoes upon their feet - they should all think of that when they shout and boast. Nothing's won without my metal, without these arms and hands and the knowledge I've learned over the years, given me by my father, learned by hammer and anvil, day after day, year in year out. Where would the warrior be without the weapon, the farmer without the plough, the chief without the torque around her neck, the Druid without his sickle, the butcher without his knife - all their boasts come to nothing without my iron - them that makes the knife cuts the joint to serve himself I say. Still, might as well bash my head against my anvil before I'11 ever get any thanks from this lot.|
http://www.celtica.wales.com/arddangosfa/gof/index.english.html
Celts in battle (225 BC): http://www.oakharbor.net/connolly/battle.htm
Ancient Celts' clothing: http://www47.pair.com/lindo/Classical.htm



Copenhagen, Nationalmuseet



The Gundestrup Cauldron discovered in 1891.



Kernunnos or Cernunnos is a solar divinity in Celtic art, and was perhaps influenced by art from Bharatiya civilization. Kernunos is depicted on the Gundestrup cauldron sitting in meditation, in a Yoga position. Many imageries of the Gundestgrop cauldron depicting Kernunnos surrounded by animals and snake, are paralleled in the inscribed objects of Sarasvati civilization. Almost all the glyphs on the cauldron (with the exception of riders on horse-back) are clearly taken from the epigraphs of the civilization.

Slide 207 Tablet with inscription. Twisted terra cotta tablet (H2000-4441/2102-464) with a mold-made inscription and narrative motif from the Trench 54 area. In the center is the depiction of what is possibly a deity with a horned headdress in so-called yogic position seated on a stool under an arch.

Cenunnos, the Stag Lord and Pas'upati



It was beaten out of 10 kg of silver, probably in the second century BC, constructed from 13 heavily decorated rectangular panels and a plain bowl containing a 14th circular one (possibly a late addition). Its measurements are fourteen inches high, twenty-eight inches in diameter, and weighs twenty pounds. The Gundestrup Cauldron now stands in the Musee Lapidaire at Avignon.

Sometime around the beginning of the Common Era, it was taken to pieces and apparently just left on the ground in a bog near what is now the hamlet of Gundestrup in Northern Jutland, where it gradually became overgrown and covered with peat. It remained there until its discovery by peat cutters in 1891.

The eight external panels (of which one is missing) each feature what appears to be the single face of a different divinity, male or female, surrounded by much smaller humanoids or beasts. The five interior panels each depict many characters, men, women, divinities and beasts, in what may be a story of a civilization which spread from Bharat into Europe.

One of these panels depicts Cernunnos.

He is seated cross-legged. He has antlers with seven tines (or points per horn), and is, unusually, depicted clean-shaven. He wears a torque and carries a second one in his right hand. He wears a tunic and bracae (Celtic trousers) which cover him from the wrist to above the knee, and a patterned belt. He wears sandals on his feet. His hair appears to be brushed straight back.

In his left hand, he holds the ram-horned serpent. This serpent also appears on another two of the five interior panels.

Surrounding him are many beasts. The nearest, on the left, almost touching horns with him, is a stag, itself of seven tines, indicating his special affinity with this beast. Close to him on the right is a dog. There are also two horned animals that may be ibexes, three long-tailed animals that could be lions, and a boy on a fish. The space between the beasts is decorated with a simple pattern of vegetation.

The five internal panels are complex, and feature many characters who may be gods, godesses or heroes. All of these characters seem to appear also on one of the eight external panels, with the exception of Cernunnos, who clearly does not. Did his image appear on the lost eighth external panel ?

Pas'upati

The origins of the Celts are obscure, but it has been suggested that they lie far to the East around the

Indo-European Plateau. If so, we should not be so surprised to find ancient divinities there who might be cousins of our own local horned deity. This ancient image came from Mohenjo Daro, in the North-West of modern Bharat on the River Sindhu, and is believed to have been made around 2,000 BCE.It is thought to be the seated figure of a very early version of Pas'upati, the Lord of the Animals in Hindu tradition, peacefully surrounded by his beasts.

The resemblance is striking.

"The Cernunnos face (on the left) is from Europe, whereas the Pas'upati mask (on the right) is from the Indus Valley. These two facial depictions of the horned God, created thousands of years apart, display only one distinct difference: their racial features." (Dr Jonn Mumford)

Hindu Deities in Iron Age Denmark: The Religious Iconography and Ritual Context of the Gundestrup Cauldron

Taylor's paper considers aspects of the second century BCE iconography of the Gundestrup cauldron in relation to the idea of death in various frameworks of thought and belief: Shamanistic, Mithraic, Pythagorean, Hindu, Celtic, Orphic, and Christian. Following from this, some general theoretical considerations about the relationship of iconographic, ritual, textual, and oral religious modes are presented. In the light of this, a precise context for the cauldron's production and use is suggested. [Dr. Tim Taylor (University of Bradford). Univ. of Birmingham, Archaeology and World Religions, Session held on 19 December 1998].
http://www.bham.ac.uk/TAG98/pages/abs

"The interior relief of the Gundestrup Caldron, a 1st-century-BCE vessel found in Denmark, provides a striking depiction of the antlered Cernunnos as "Lord of the Animals," seated in the yogic lotus position and accompanied by a ram-headed serpent; in this role he closely resembles the Hindu god S'iva in the guise of Pas'upati, Lord of Beasts. Another prominent zoomorphic deity type is the divine bull, the Donn Cuailnge ("Brown Bull of Cooley"), which has a central role in the great Irish hero-tale Táin Bó Cuailnge ("The Cattle Raid of Cooley") and which recalls the Tarvos Trigaranus ("The Bull of the Three Cranes") pictured on reliefs from the cathedral at Trier, W.Ger., and at Nôtre-Dame de Paris and presumably the subject of a lost Gaulish narrative."
http://www.britannica.com/bcom/eb/article/4/0,5716,119804+5,00.html

The Gundestrup Cauldron

The Gundestrup Cauldron is believed to be of Celtic or La Tene art. It is thought to have been produced in the late La Tene period after 120 BCE because the ornamentation on it is not as extravagant as that of the earlier period.

Due to the size of the vessel it is clearly recognized to have been used for sacrificial purposes. This is also in keeping with the Celtic religion of Druidism of that time.

Some claim the figures on the sides of the cauldron amount to the primitive Celts' version of their own hell. But, others dispute this interpretation because of the peoples' Druidic religion by which they held a strong belief in reincarnation. The drawings may, however, account for these peoples' collective subconscious.
Some may consider the cauldron grotesque and a depiction of the cruel nature of the early Celtic people, since one of the drawings on the cauldron depicts an uprooted tree-trunk being carried by sinister warriors to a priest who is pushing some man into the pot; but, the cauldron itself is in keeping with the nature of other magical cauldrons. This is especially true in connection of the folklore of ancient Ireland. The early Celts associated cauldrons with fertility, abundance, and the revival of the dead.

This is why the Celtic god Cernunnous is depicted on the Gundestrup Cauldron since he is the divinity of all of these things. He was thought to be the divinity of fertility, abundance, death and rebirth.

Cernunnous was the Horned Divinity of the Celts. He was associated with the hunt and fertility. Occasionally he was portrayed with serpent legs, torso of a man, a head of a bull or ram, or shown with stags wearing antlers. The name Cernunnous means horned.
He is the lord of life, death and the underworld. Being the Sun to the Godess of the Moon, he alternates with her in ruling over life and death. With her, he cooperates in continuing the cycle of life, death and rebirth, or reincarnation.

His own life is said to be circular. The Horned God is born at the winter solstice, marries with the Godess at Beltane (May 1), and dies at the summer solstice. His death represents a sacrifice to life.

The Horned Divinity's origin possibly dates back to Paleolithic times, as evidenced by a ritualistic cave drawing found in the Caverne des Trois Freres at Ariege, France. The picture is with one of a stag standing upright on its hind legs, or a man dressed in a stag costume performing a dance. The wearing of animal clothes in rituals to secure game was practiced in Europe for thousands of years.

He was worshipped by the Romans and Gauls who portrayed him with a triple head. Sometimes, the Romans depicted him with three cranes flying above his head.

Other deities associated with, or claimed to be representative of Cernunnous are: Herne the Hunter, a ghost of Britian; Pan, the Greek god of the woodlands; Janus, the Roman god of good beginnings with his two faces looking in opposite directions representing youth and age, and life and death; Tammuz and Damuzi, the son- lover-consorts of Ishtar and Inanna; Osiris, the Egyptian lord of the underworld; and Dionysus, the Greek god of vegetation and the vine, whose cult observed rites of dismemberment and resurrection."

The Celtic god Esus was analogous to Cernunnous. Similarly the animal of Esus was the bull. Esus was sometimes identified with Cernunnous. Supposedly Esus was also ruler of the underworld, but this did not keep his worshippers from considering him to be a divinity of plenty and portraying him holding a sack of coins.

Most frequently, whenever Cernunnous was depicted or portrayed, he was shown as an animal, usually a stag, or surrounded by animals.

In the Welsh tale "Owain" his role as a herdsman-god and a benign keeper of the forest is told. Here he summons all the animals to him through the belling of a stag. All the animals even serpents obediently came to him "as humble subjects would do to their lord."

Some feel that the honoring of Cernunnous even continued in the early Christian era. Many of the early ascetics still had pre-Christian longings for nature. To substantiate this, there is the account of Saint Ciaran of Saighir. This humble man went into the wilderness to establish a cell that would eventually become a monastery. A boar came, seeing the man he was terrified, but later returned and was submissive to the man of God. Saint Ciaran considered the boar his first monk. The boar was later joined by a fox, a badger, a wolf and a stag. These animals left their liars to join the community.

There are other tales such as this one that give rise to suspicions that caused early Christian writers and artists to associate Cernunnous with Satan, although some Christians never lost their love of nature. Saint Francis of Assisi is well known for his love of animals and birds.

Cernunnous is still honored in some modern Druid organizations, in Neo-pagan witchcraft and by the Church of All Worlds

http://www.themystica.com/mystica/articles/g/gundestrup_cauldron.html

The Gundestrup cauldron : its archaeological context, the style and iconography of its portrayed motifs, and their narration of a Gaulish version of Tâain bâo Câualnge by Garrett S. Olmsted.

Gundestrup cauldron was found in a bog near Gundestrup, Denmark.

> See photos of the bodies found in the bog:
> http://jamesmdeem.com/bogphotos.htm
> Dutch early and middle Bronze age pictures:
> http://www.angelfire.com/me/ik/pics.html

The cauldron is forged and made of silver (96%) and consists of seven outer plates, five inner plates, and separate rim and base pieces. It is decorated with Celtic and exotic imagery using repousse and engraving techniques. Recent study has determined that no less than five crafts-workers worked on it, all using different tools for the moulding, engraving and assembly of the cauldron. It was not from Denmark originally, but probably made in the south-east of Europe for a Celtic clientele. http://www.celtic-cauldron.com/

Its typical Celtic decorations include an elephant.

One of the panels with a figure having upraised arms on the Gundestrup Cauldron is accompanied by the wheel.

"A romanized, female face with empty eyes (once filled with inlaid glass) and a buffer ended torc is flanked on each side by ox-heads. Two wild beasts flanking a triskele are found on the inner plate. Possibly made by more than one person, the symbolism is Celtic and it probably made its way to Denmark via trade or the warlike wanderings of the Cimbri. The torc is of a type that was current in France in the last years of the 1st century BCE or the early years AD.The most famous cauldron is, of course, the Gundestrap Cauldron whuch was found, dismantled, on the surface of a peat-bog in northern Jutland. With a combined weight of almost 9kg, five internal plaques, a basal disc, and seven out of eight square external plates survived. Recent study has shown that the plates were made by several different artists, perhaps by 2nd century Thracians.

"Some of the iconography is Celtic: a cross-legged, antlered god, wearing a torc and holding another in his hand; warriors with helmets crested with boars or birds of prey; animal-headed war trumpets; circular harness mounts; shield-bosses of the Late La Tene type. Celtic dogs, wolves and bulls are seen, but so are more exotic animals - lions, dragons/griffons, elephants, and even a boy on a dolphin...

"Processions of warriors, a squatting god with antlers and holding a snake and a torc, passively standing lions, ibex, griffons, elephants and leopards are some of the images found on the side plates of the cauldron. An oversized figure holding another, smaller, figure upside-down over a cauldron has been interpreted as possibly a god of war offering sacrifice or as a representation of the bringing a dead hero back to life by immersing the body in the 'cauldron of plenty'." *Celtic Art - A Brief Overview* by Tara NicScothach bean MacAnTsaoir http://clannada.org/docs/art.html



Cernunnos, 'the horned-one or the peaked-one' is named on an altar in Paris (carving made by sailors from the Gallic Parisii tribe). Or, Herni, the Celtic Forest God (?), who appears on the Gundestrup Cauldron and is seen sporting an antlered head dress.

The carnyces on the Gundestrup cauldron show what might appear as horns, but are really the cropped ears of the animal. On the latter the boar’s crests are very

clear, as are the snouts. The symbolism of the boar is that of the underworld or the "deep" -- "dubno" in Celtic.

Cernunnos is holding both a snake and a torc (variant of the ring). The snake in this context is...the cycles of the heavens. As for Hindu mythology, we can cite the serpent-king Sesha, who coiled, represents eternity. The ram-horned serpent is particularly interesting. The serpent occurs in myths all across the world, and is nearly always associated with knowledge.

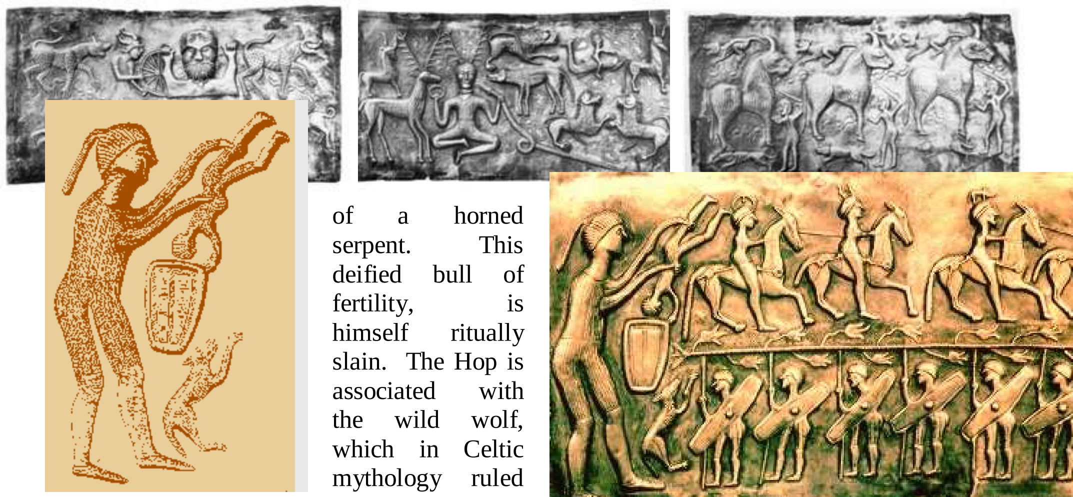
Torque or torc. In jewelry, metal collar, neck ring, or armband consisting of a bar or ribbon of twisted metal curved into a loop, the ends of which are fashioned into knobs ornamented with motifs such as volutes or depicting animal heads, or drawn out and bent abruptly so as to hook into one another. The torque is a unique neck ornament in that it is not flexible and was often of great size and weight.

Achaemenidian jewelry made in Persia from the 6th to the 4th century BCE contains examples of torques, the terminals of which are made in the form of lions, ibex, rams' heads, or purely fantastic animals. The torque was a characteristic male neck ornament of such peoples as the ancient Teutons, Gauls, and Britons. The Romans, when they invaded Britain, were so intrigued with the torques that they awarded them to their soldiers for brave acts. http://www.britannica.com

Slaying of a Bull: from the Bottom of the Gundestrup Cauldron

Various beasts and fish-rider on right

“The leaping horned figure with a chariot-wheel as his weapon; he also leaps upon and breaks the neck



of a horned serpent. This deified bull of fertility, is himself ritually slain. The Hop is associated with the wild wolf, which in Celtic mythology ruled

over the winter months of the dead time. February was called the 'wolf month' and thus the wolf is associated with Imbolc. The Wolf has connections with underworld deities, and stands beside Cernunnos on the Gundestrup cauldron. The Greek Wolf-godess Leto gave birth to the sun-god Apollo - an underworld/winter deity giving birth to the new sun at the Winter solstice."

[Excerpt from: "*Herb Craft - a guide to the shamanic and ritual use of Herbs*" by Susan Lavender and Anna Franklin. Capall Bann Publishing 1996.]
This detail from the Gundestrup Cauldron shows warriors on foot with shields and spears, and on horseback with decorated helmets. The style is simple with motifs referring to recognised Celtic mythology and legend.

Three aspects. Top: An ally and 3 riders try to jump the felled tree obstacle; next warriors and trumpeteers march; finally wrestling and drowning the enemy.



The godess endows the sovereign with his powers and the Earth with fertility, rides upon her wheeled chariot in a sunwise direction. The elephants, the griffins and lion relate her as War Godess.

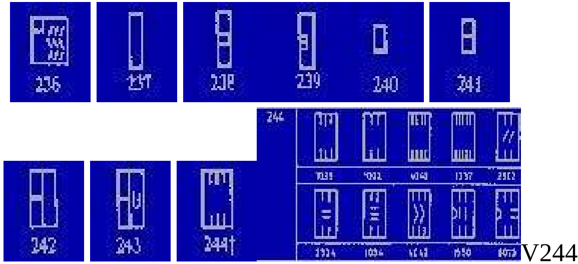
The rich iconography of the Gundestrup cauldron also shows a dog underneath the cauldron in which a man or child is being immersed head-first - usually considered to be a sacrificial act.

Sources:
'*Thracian Tales on the Gundestrup Cauldron*', Flemming Kaul, Ivan Marazov, Jan Best, Nanny deVries. Najade Press, Amsterdam, 1991.
http://www.cyberwitch.com/wychwood/Temple/kernunnos.htm
http://www.sniffout.net/home/simontodd/herne.htm
http://www.realtime.com/~gunnora/vik_pets.htm
http://www.swampfox.demon.co.uk/utlah/shift/wolfbane.html
http://www.csp.org/chrestomathy/hallucinations2.htm
http://www.indigogroup.co.uk/edge/bdogs.htm
http://www.collect.com.au/_numismatics/00000016.htm
http://sacredsource.com/gundestrup/
http://www.djames.demon.co.uk/celtic/cr01.htm
http://www.celtic-cauldron.com/images/gcauld.jpg
http://www.realtime.net/~gunnora/graphics/gundstrp.gif

Glosses from Bharatiya languages

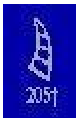
Many clusters of lexemes were scanned to establish a set of homonyms and their rebus representations which may help unravel the messages contained in epigraphs of the civilization.

An attempt can be made to match the orthography of a glyph with a corresponding lexeme (based on the **Indian Lexicon**) which may describe it. A homonym rebus then establishes the substantive conveyed by the glyphs.


V244

ku_t.am = a room (Ta.lex.)

ku_t.am = smith's sledge hammer, heavy hammer (Ta.)



kakkat.a = dagger (Ma.); kakkad.e, karkad.e = a kind of weapon (Ka.)

Sarasvati Civilization

An overview

A historical project in search of River Sarasvati to discover our roots, has become a magnificent opportunity for national resurgence and to make Bharat a developed nation.

This is presented in three sections: observations, conclusions and areas for further research.

Observations

Many sparks have emerged from the anvils of scholars and researches of a variety of disciplines – all focused on the roots of civilization of Bharat.

Collated together, these sparks have become a floodlight which throws new light on the civilization of Bharat.

It is a new light on the civilization because of the following reasons:

- A mighty river, a river mightier than Brahmaputra had drained in North-west Bharat for thousands of years prior to 1500 BCE (Before Common Era).

- The collective memory of a billion people, carried through traditions built up, generation after generation, recalls a river called Sarasvati; this memory is enshrined in the celebration of a Mahakumbha Mela celebrated every 12 years at a place called Prayag where the River Ganga joins with River Yamuna. River Sarasvati is also shown as a small monsoon-fed stream in the topo-maps of Survey of India and in village revenue records in Punjab and Haryana.

Yet, the tradition holds that there is a triven.i san:gamma (confluence of three rivers). The third river is River Sarasvati. This tradition has now been established as a scientific fact – ground truth -- thanks to the researches carried out using satellite imageries, geo-morphological studies, glaciological and seismic studies and even the use of tritium analysis (of traces of tritium present in the bodies of water found in the middle of the Marusthali desert) by atomic scientists. The desiccation of the river was caused by plate tectonics and river migrations, between 2500 and 1500 BCE.

These studies have established beyond any doubt that River Sarasvati was a mighty river because it was a confluence of rivers emanating from Himalayan glaciers; the River Sutlej and River Yamna were anchorage, tributary rivers of River Sarasvati. The river had drained over a distance of over 1,600 kms. from Manasarovar glacier (W. Tibet) to Somnath (Gujarat) with an average width of 6-8 kms. At Shatrana (south of Patiala), satellite image shows a 20 km. wide palaeo-channel (ancient course), at the confluence of five streams – Sutlej, Yamuna, Markanda, Aruna, Somb – referred to as Pan~ca Pra_ci_ Sarasvati in Bharatiya tradition. This becomes Saptatha Dha_ra Sarasvati when two other

streams – Dr.s.advati and Ghaggar – join the River Sarasvati at Sirsa

- A civilization was nurtured on the banks of this River Sarasvati as recognized through the work of archaeologists and the geographical/historical facts contained in ancient texts of Bharat, such as the *Mahabharata* and *Pura_n.a.* This civilization was an indigenous evolution from earlier than 10000 BCE and can be said to be one of the oldest civilizations in the world, heralding the Vedic heritage.

Over 2,000 archaeological sites have been discovered in the Sarasvati River Basin. There is a description, in 200 s'lokas, in the S'alya Parva of Mahabharata of a pilgrimage undertaken by Balarama, elder brother of Kr.s.n.a, along the River Sarasvati from Dwaraka to Yamunotri.

- The oldest extant human document is the R.gveda which is a compilation of 11,000 r.ca-s perceived by hundreds of seers. An understanding of this document is fundamental to an understanding of the cultural ethos of Bharat.
- R.gveda presents a world-view in allegorical and metaphorical terms perceiving an essential unity in cosmic phenomena and r.ta (a rhythm which modulates the terrestrial and celestial events alike). While the document presents the early philosophical thought related to *dharma,* it also describes the lives and activities of people – the Bharatiya. R.gveda thus presents a variegated picture covering a variety of facets of a maritime-riverine civilization, such as transport systems, agriculture, use of fire, minerals and metals to produce household utensils, ornaments, tools and weapons. Archaeologists have unearthed many examples of technology used in the days of the Sarasvati Civilization (from circa 3500 BCE to 1500 BCE). These provide evidence for the evolution of s'ankha industry in 6500 BCE, preparation of alloys such as pan~caloha, bronze, brass, pewter and bell-metal.
- A dialectical continuum has existed in Bharat from the days of R.gveda and Sarasvati Civilization. The civilization constituted a linguistic area, as it is even today in Bharat. Mleccha was a language spoken by Vidura and Yudhis.t.hira as evidenced by *Mahabharata.* Mleccha were vra_tya-s who worked with minerals and metals. The semantic structures (words and meanings) of all languages of Bharat – Munda, Dravidian or Indo-Aryan categories – present an essential unity among the speakers of various dialects of Bharat. The seven volume work on Sarasvati substantially draws upon the *Indian Lexicon*, which is a comparative dictionary of over 25 ancient languages of Bharat.
- Using this lexical repertoire of the linguistic area called Bharat, it has been possible to crack the code of the epigraphs of the civilization inscribed on over 4,000 objects including seals, tablets, weapons and copper plates. The epigraphs are composed of hieroglyphs (referred to as Mlecchita Vikalpa – picture writing --, one of the 64 arts listed by Va_tsya_yana).

The code of hieroglyphs is based on rebus (use of similar sounding words and depicted through pictures) and represent the property possessions of braziers – possessions such as furnaces, minerals, metals, tools and weapons. These were also traded over an extensive area upto Tigris-Euphrates river valley in Mesopotamia and the Caspian Sea in Europe.

- The tradition of epigraphy evidenced in punch-marked coins and copper plate inscriptions in the context of Sarasvati Epigraphs points to millions of manuscripts and documents remaining unexplored all over Bharat.
- Ongoing projects for the rebirth of River Sarasvati has opened a new vista in water management in Bharat, which has an ancient tradition of water management exemplified by the rock-cut reservoir in Dholavira, the grand anicut on Kaveri, the step wells and pus.karin.is in all parts of Bharat.
- Desiccation of River Sarasvati is a warning to us about the unpredictability of the impact of tectonics on hydrological systems sourced from the Himalayas, for e.g. the Rivers Ganga and Brahmaputra.

Conclusions

- River Sarasvati is neither a legend, nor a myth, but ground-truth, a river which was flowing for thousands of years prior to Vedic times.
- Bharatiya Civilization is an indigenous evolution and cultural continuity is established from the Vedic times to the present day.
- For thousands of years before the days of Mahabharata War (ca. 3000 BCE), the Bharatiya had contacts with neighbouring civilizations.
- The historicity of *Mahabharata* has been established making it a sheet anchoe of Bharatiya Itiha_sa.
- After the desiccation of River Sarasvati (finally by about 3000 years ago), Bharatiya-s moved to other parts of the world.
- The metaphor of Samudra manthanam (celebrated in the *Bha_vata Pura_n.a*) is a depiction of the reality of a cooperating society which had united all the people of Bharat into life-activities including the environmentally sustainable use of natural resource offered by Mother Earth (Bhu_devi).
- Sarasvati is adored in Bharatiya tradition as a river, as a mother and as a divinity – *ambitame, nadi_tame, devitame sarasvati.* This is an abiding spiritual foundation which resides in the heart of every Bharatiya.
- The epigraphs evidence one of the early writing systems of the world.
- The search and discovery of River Sarasvati has revealed a thread of essential unity – a bond among the people of Bharat. This has emerged from Vedic times and continues even today. This is the unity of an integral society, a resurgent nation and a unified culture which can be found in all parts of Bharat, from the Himalayas to the Indian Ocean.
- Research Institutions have to be established in different disciplines of historical studies to study the manuscripts and documents in the archival collections in all parts of the country.
- The initiation of a project for interlinking of rivers is a laudable, first step in creating a National Water Grid which has the potential to ensure equitable distribution of water

resources to all parts of the country and to make Bharat a developed nation in 15 years' time.

The establishment of the Water Grid is a national imperative and should be an unmotivated action (*l'acte gratuite*) devoid of political overtones.

- The establishment of an inter-disciplinary Sarasvati Research Centre in Kurukshetra will help in progressing further researches on water resources management, and study of our history, heritage and culture.

Areas for further researches

- Glaciological researches are needed in relation to the glacial source of River Sarasvati which is referred to as *Plaks.a Pras'ravan.a* in the ancient texts.
- Seismological studies are needed to determine the chronology of events connected with the submergence of Dwaraka, the Gulf of Khambat and other coastal regions of Bharat.
- Meteorological, glaciological and seismological studies have to be related to plate tectonics – the dynamic Indian plate and the evolving Himalayas – for a better understanding of the hydrological systems, sustainability and management of a National Water Grid for Bharat.
- Archaeological work on the 2,000 sites on Sarasvati River Basin have to be related to the events described in the ancient epics: *Ramayana* and *Mahabharata*
- The Vedic texts, epics and Purana-s contain historical information.which can be validated through archaeological, astronomical and geographical studies.
- Epigraphical and language studies in relation to the evolution and spread of languages and scripts of Bharat.
- Scholars have to be encouraged to study the unexplored manuscripts lying in museums, libraries and private collections.
- Researches for establishing the National Water Grid should be objective and provide a new vision to reach out the water and agricultural resources of thecountry, equitably, to all people and for the development of the nation.

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End Notes

[1] **Frankincense and myrrh from the land of Punt and gold from Ophir**

"The only region to which the Egyptian pharaohs seem to have regularly sent expeditions by sea was the land called Punt (**pwnt**). It was here that the Egyptians acquired their frankincense (**sntr**) and myrrh (**'ntjw**, a word later used to describe aromatics in general), the latter commodity being of particular importance because of its employment in the process of embalming. Expeditions to Punt may have begun as early as the reign of Sahure (Fifth Dynasty, circa 2475), the twelfth year of whose reign no less thatn eighty thousand units -- the exact unit size is uncertain -- of myrrh from Punt were received, according to the Palermo Stone...Punt seems to have been reached by closely following the western shores of the Red Sea, and thence bringing the acquired goods overland through the Wadis Gasus and hammamat before sending them down the Nile to their final destinations. A high official of Sankhkare Mentuhotep II (Eleventh Dynasty, circa 1950) named Henenu left an inscription on a rock face in the Wadi Hammamat in which he declared that he had been sent out to build a ship intended to bring frankincense back from Punt...Without doubt the most famous testimony of the Egyptian Punt expeditions, however, is preserved on the temple relief of Dayr al-Bahri, where five ships sent to Punt by Queen Hatshepsut (circa 1478/72-1458) are depicted in great detail...In addition to frankincense and myrrh, a number of other commodities were acquired in Punt, including gold, electrum, slaves, ebony, ivory, baboons, monkeys, leopard or panther skins, eye paint, and various gums and resins...Hatshepsut's reliefs show no fewer than thirty-one **'ntjw** trees that had been brought back from Punt. Ramesses II (circa 1279-1213), moreover, boasted in his temple reliefs at Abydos of having planted many gardens with trees and plants from Punt, while Ramesses III (circa 1187-1156) says specifically that he planted frankincense trees at Thebes and both frankincense and myrrh trees (*Boswellia sacra or Commiphor*a myrrha) at Memphis (Mit Rahina)...

"Solomon (circa 973-933) and Hiram of Tyre together attempted to reach Ophir, a land has been called the California of the biblical world because of its gold resources. In 1 Kings 9: 26-28, we are told, 'And king Solomon made a navy of ships in Ezion-geber (modern Tell al-Khalayfa at the head of the Gulf of 'Aqaba), which is beside Elath on the shore of the Red Sea, in the land of Edom. And Hiram sent in the navy his servants, shipmen that had knowledge of the sea, with the servants of Solomon. And they came to Ophir, and fetched from there gold, four hundred and twenty talents, and brought it to king Solomon.' Elsewhere we are told that Hiram's own navy returned not only with gold but with precious stones and many almug trees." (Potts, 1995, p. 1459-1461).

The location of Punt is suggested to be Somalia or eastern Sudan or northeastern Ethiopia and the location of Ophir somewhere in or near Arabia or Sofa on the east coast of Africa.

It should, however, be noted that Eusebius Pamphili (263-339 CE) and later Hiernonymus (Saint Jerome, 348-420), identify **So_pheira** as a mountain in India.

[2] Prof. Misra counters this in Lecture 6 (1999):

"Progress towar the solution of the problems of continuity and discontinuity , which are so important for the Indo-European problem, can only be achieved after the possibilities of diffusion, trade and migration have been weighed against those of transformation" (Klejn, 1977, A Panorama of Theoretical Archaeology, *Current Anthropology*, 18, 1: 1-42). (Homer L. Thomas, The Indo-Europeans--some historical and theoretical considerations, in: Skomal, Susan Nacev and Edgar C. Polome (eds.), *Proto-Indo-European: the archaeology of a linguistic problem, Studies in honor of Marija Gimbutas*, Washington DC, Institute for the Study of Man, 1987, pp. 145-164).

[3] The peculiar case of "Sindhu"

“Among IA-looking river names, a case can be made for surprising IE etymologies of names usually explained as loans. In particular, *sindhu* might be an "Indo-Iranian coinage with the meaning 'border river, ocean' and fits Paul Thieme's etymology from the IE root **sidh*, 'to divide'". (1999/1:387) Now, if the Vedic Aryans only entered India in the 2nd millennium BC, the name Sindhu cannot be older than that.

“According to Oleg Trubachov (1999), elaborating on a thesis by Kretschmer (1944), Indo-Aryan was spoken in Ukraine as late as the Hellenistic period, by two tribes knows as the *Maiotes* and the *Sindoi*, the latter also known by its Scythian/Iranian-derived name *Indoi* and explicitly described by Hesychius as "an Indian people". They seem to have used a word *sinu*, from *sindhu*, for "river", a general meaning which it also has in some Vedic verses. Trubachov lists a number of personal and place names recorded by Greek authors (e.g. *Kouphes* for the *Kuban* river, apparently a re-use of *kubhâ*, the *Kabul* river, Greek *Kophes*), and concludes that the Maiotes and Sindoi spoke an Indo-Aryan dialect, though often with *-l-* instead of *-r-*, as in king *Saulios*, cfr. *sûrya* (just the opposite from Mitannic, where *palita*, "grey", and *pingala*, "reddish", appear as *parita* and *pinkara*) and with *-pt-* simplified to *-tt-* (so that, just like in Mitannic, *sapta* appears as *satta*, a feature described by Misra 1992 as "Middle IA").

“Working within the AIT framework, Kretschmer saw these Sindoi as a left-over of the Indo-Aryans in their original homeland, and even as a splendid proof of the Pontic homeland theory (Trubachov is less committed to any particular homeland hypothesis). In that case, again, the name *sindhu* (and likewise *kubhâ*) would be an Indo-Aryan word brought into India by the Vedic-Aryan invaders. .. (Koenraad Elst, *Linguistic aspects of the Aryan non-invasion theory*).

[4] tibira, ‘coppersmith, metal-manufacturer’ and similar-sounding lexemes

Image: gimlet: tamar hole made by a gimlet; a borer, gimlet, drill (Ma.); tamar boring instrument; gimlet, spring awl (Ta.); tamiru gimlet (Tu.); tamire, tagire the pin in the middle of a yoke (Te.); tavar (-v-, -nt-) to bore a hole; *n*. hole in a board (Ta.)(DEDR 3078). tau~ri giddiness, dizziness (Ku.); tavar id. (M.)(CDIAL 5688). ta~v, tav, tava_ giddiness (M.)(CDIAL 5689). tavar to bore a hole (Tiv. Tiruva_y. 9,9,1); tamar hole, as in a plank, commonly bored or cut (Tiruvil.ai. Ma_n.ikka. 61) *Image: groove or mortise*: tavan.ai-p-poruttu a groove or mortise on the top of a gate or door-post (Ta.lex.) tamire = the pin the middle of a yoke (Te.lex.) tavan.ai joint, in carpentry (Ta.lex.) tavar = hole (Ta.lex.) tamar = hole, commonly bored or cut (Ta.Ma.)(Ta.lex.) tava_l.i-ttal = to make flutings or grooves, as in carpentry; to dig a channel; tala_l.ippu cavity in a moulding, groove (Ta.lex.) tavar-aiva_ri = handspike, a tool used on a ship; tavar-ai mu_t.t.a_n- = anchor chain; tavar-ai < dabara (Te.) capstan, machine for winding up a cable in small craft (Ka.lex.) tavan. = circle drawn with lime, or string tied around a limb, above the site of a poisonous bite with incantations to stop the spread of poison; tavan.ai = joint, as in carpentry (Ta.lex.) cf. ta_mare = ringworm (Ka.); ta_mara id. (Te.); ta_mra = a kind of leprosy with large red spots (Skt.)(DEDR 3164).

tavur, tavuruni to cut away any leaves or brushwood, to clear a bush (Ta.)

tavan.ai = raft or float for crossing rivers, especially one made of earthen pots and bamboos (Ta.lex.)

tavan.ai-k-kat.ai = banking house of a na_t.t.ukko_t.t.ai cet.t.i; tavn.aikkan.akku periodical accounts of land-revenues (Ta.lex.)

tamar = doorway (Ta.lex.) [Note the arch ligatured to a spoked-wheel].

tavali = bull, white cattle (Ta.lex.)

tavali = a fish (Ta.lex.)

takar = male of makara, cur-a_, alligator (Ta.lex.)

takar = ya_l.i (Ta.lex.)

takar = elephant (Ta.lex.)

Tin ingot

touren~, tourea_ = a lump of tin (Kon.lex.) ta_bulu = a tinsel, brass leaf; the cuts, as of a precious stone; ta_bu_tu = the cage made of paper and tinsel by mussalmans at the moharam (Tu.lex.) tavara, tagara, tamara, tavaru = trapu, tin (Ka.lex.) cf. tamara = tagara, tin; lead (Ka.lex.) tamaramu, tavaramu = tin (Te.lex.) takaram tin, white lead, metal sheet, coated with tin (Ta.); tin, tinned iron plate (Ma.); tagarm tin (Ko.) tamaru, tamara, tavara id. (Ta.): tagaramu, tamaramu, tavaramu id. (Te.); t.agromi tin metal, alloy (Kuwi); tamara id. (Skt.)(DEDR 3001). trapu tin (AV.); tipu (Pali); tau, taua lead (Pkt.); tu~_ tin (P.); t.au zinc, pewter (Or.); taru_aum lead (OG.); tarvu~ (G.); tumba lead (Si.)(CDIAL 5992). **t.agara** = borax (VarBr.S); borax (Si.); t.agara, t.an:kan.a, t.an:gan.a, t.an:ka, t.an:ga (Skt.); dana_ka_r borax, alum (Kho.); tanga_r (Ir.Persian)(CDIAL 5437). tagad.u = a plate sheet leaf or foil; of metal (Te.lex.) tagara, tavara [Tbh. of tamara or trapu] tin (Ka.Te.Ta.M.)(Ka.lex.) Alloy: tara_ alloy of 8 parts of copper to 5 of tin, used for making metal vessels (pukar..tara_-p- po_kkillai) (Cine_n-. 169)(Ta.lex.) [The ligatured standard device can thus be explained as: tavaru san:gha_ta (lit. tin composite material), alloyed with tin or lead!] tamaram = lead (Kathirvelpil.l.ai Ta.lex.) tagad., tagd.a_ = tin, a sheet of tin (Kon.lex.)

tagat.u = gold lace; tagat.i = of gold lace; ornamented with gold lace (Te.lex.)

takaram = lead (Ta.lex.)

ta_val.am = a string or garland of beads, a rosary (Te.lex.) ta_vat.am = sacred elaeocarpus beads; necklace (Ta.lex.)

cf. tagori = potter’s wheel (Tu.)(DEDR 3200).

mer = (Hem.Des. mera_ fr. Skt. meru, name of a mountain) the largest bead in a rosary from which the reckoning begins (G.lex.) [Note the trefoil glyph on the uttari_yam worn by the priest; mer could be represented by a dotted circle, like a bead].

taga_rum [Persian. taga_rah] a bricklayer’s trough; a hod (G.lex.) tagar. = a trough; tagar.re surti ar cunko sipia = they mix surti and lime in a trough (Santali.lex.) taga_r = a tub, bucket, a trough, a platter, a mortar bed; taga_ri_ = a small tub, trough or bucket (P.lex.)

tagr.a = large, massive, strong (Santali.lex.)

t.agri han.d.i = pachwae, liquor made from rice, rice beer (Santali.lex.)

ten:gra hako = a species of river fish (Santali.lex.)

tagar = a flowering shrub (G.lex.)

[5] Image: potter's wheel: tikiri wheel (Cilap. 4,2); potter's wheel (Ka_cippu. Tirunakarap. 76); discus weapon (Kampara_. cittira. 40); royal authority (Man.i. 22,16); chariot, car (Ja_n-a_. 7,17); sun (Akana_. 53); tikirikai wheel; potter's wheel (Ta.lex.) Image: wheel: tiguri, tigari, tiguru a wheel, especially a potter's wheel (Ka.); tigiri (Ta.); kumba_r-ada tiguri kula_la cakra (Ka.lex.) tekos, tekos tekos imitative of the sound produced by the charka or spinning wheel, to whir; tekos marte sad.e gotena it gave a whir, it sounded whir; tekhar times; bar pe tekharic nelkedea I saw him two or three times (Santali.lex.)
http://www.hindunet.org/saraswati/dictionary/4052TO.HTM

[6] **Nahali vocabulary**

1	biDum
2	irar
3	moTho
4	na:lo
5	pãco
6	cha:h
7	sato
8	aTho
9	nav
10	das

The numbers 5-10 are clearly of IA origin. The numbers 1-5 are Dravidian:

biDum cf. Toda wïD, Kota vodde, Irula vondu
irar cf. Toda e:D, Brahui ira:, Kolami i:ral, Kannada eraDu
moTho cf. Toda mu:D, Telugu mu:Du
na:lo cf. Toda no:N, Koya na:lu, Tulu na:l, Malayalam na:lu

But the Munda layer is thicker, and the Nahali verb system is reportedly Munda-like. The unidentified substrate is said to account for about 25% of the vocabulary. Perhaps the fairest description of Nahali would be this: an old creole language that has been decreolised in favour of its Indo-Aryan component.

Nahali *ad.d.o, ard.u* 'tree, wood' Parengi. *ara*? Sora. *era_*
Nahali *ara* 'to see' Santali *arak' orok'* 'gaping, staring; Mundari *arid* 'to gaze, look at'

Nahali *akhand.i* 'finger'

Nahali *baddi* 'bull' Gutob of Bastar state *ba_d.i_*; Kolami *barre* 'buffalo'; Telugu *bar-r-e* 'female buffalo'; Pkt. *pad.d.a*
Nahali *oba* 'bull'; Kurku *doba* 'ox, bull, bullock'; *dobaq* 'bullock'; Marathi *d.obad.* 'female buffalo'; Bhili *d.obe* 'cattle'

Nahali *bakra* 'a he-goat'; Hi. *bakra_;* Ku. *bokra, bon:gora*

Nahali *bard.o* 'sickle'

Nahali *bot.or* 'hare'; Gondi *bhat.e_lya_*; Munda *kuala* 'hare'; Kherwari *kulai, kulae*

Muci *jor.t.a_* 'two' ; Beng. *jor.a_* 'couple'

Nahali *cort.o* 'blood'; Tamil, Malayalam *co_ri*, Kod.agu *co_re* 'blood'

Nahali *cakot.o, cekot.o* ‘axe’; Kurukh *cakna_* ‘to sharpen’; Telugu *cekku-* ‘to pare’ Kui *sekali* ‘to scrape (with a hoe)’; Burushaski *cak* ‘axe For *-t.o: kalt.o* ‘a Naha_l person’; du. *kalt.ihlt.el*, plur. *kalit.t.a*; *-t.o* seems to be a suffix; Skt. *karkat.aka* ‘name of a tribe in ancient Bharat’. *jakot.o* ‘male; *jakot.o ma_u* ‘horse’; *ja_kot.o haran* ‘male deer’

Nahali *cokob* ‘leaf of a tree, a Naha_l clan-name’; Kurku Santali Mundari *sakom* ‘leaf’

Nahali *cha_h* ‘six’; Hi. *cha*

Nahali *ca_n* ‘fish’; Kurku *cade* ‘a certain kind of fish’; Muci *cha_n rui* ‘fish’ (lit. rohit fish caught in net)

Nahali *candi* ‘silver; Kurku *candi*; Hi. *ca~_di_*

Nahali *cana* ‘dance; *cana-* ‘to dance’

Nahali *carko* ‘black-faced monkey’; Mundari *sara’*; Ho Kurku *sara* ‘monkey’, ‘baboon, black-faced monkey’; Ainu *saro*; Jap. *saru*?
Nahali *d.ugi* ‘red-faced monkey’ Ku. *dhugi* ‘baboon, a red-faced monkey’; Sakai *dok*; Tembi, Senoi *dokn*, Stieng duk, Bahra *dok*, Chrau *dok*, Halang *modok*, Sedang *do* ‘monkey’

Nahali *cergo-* ‘to run’; Kurku *sarub-* ‘to run’

Nahali *cerk(o)* ‘to fall’; Tamil *carukku* ‘to slip’; Kannada *saraku* ‘to slip, slide’; Malto *jarqe* ‘to be dropped, fall’

Nahali *d.ad.i* ‘beard’; Kurku *dadi*; Hi. *da_r.hi*

Nahali *d.and.o* ‘upper arm’; Kurku *d.and.o* ‘upper arm’; Kolami *dand.a*; Parji *d.and.a*

Nahali *d.an:go* ‘branch of a tree’; Kurku *dagan*; Hi. *d.o~ghi_;* Kui *d.e_ga*

Nahali *d.ed.d.a* ‘frog’ Kurku *dedda*; Pkt. *d.ed.d.ura*; Skt. *dardura*

Nahali *d.on:ga* ‘a variety of ant of big size’; Kurku *don:ga* ‘a large black ant’; Mar. *d.o_gl.a_* ‘a species of large ant’

Nahali *d.on:gor* ‘hill, jungle, forest’; Kurku don:gor; Hi.Mar. do_gar ‘hill, mountain’
Nahali *balla* ‘hill’ Ku. *balla, bala*; Khandesi *balda_*; Kun.bau *bald.a_*; Hi. *ba_la_* ‘high, aloft’ Tamil *vallai* ‘hillock, mound’

Nahali *dhan:kar* ‘shepherd’ Hi. *dha~_gar* ‘caste whose business is to dig wells, tanks’; Kolami *dhan:gar* ‘shepherd’ from Mar.

Nahali *d.hol* ‘drum; Kurku *dhol*; Hi. *d.hol*

Nahali *d.hor* ‘cow’; *dhotta_* ‘cows, cattle’; Kurku *d.hor-ku* ‘cattle’; Nahali *bidi_ dhotta_* ‘a cow’, *dhatta_* ‘cow’; Baori (Lahore) *e_k d.hat.t.o_* ‘a bull’; Hi.Mar. *d.hor* ‘cattle, beast’; Kolami *do_r*, Gondi *d.ho_r.-k* ‘cattle’ Gutob of Bastar state *dhorai_* ‘shepherd. Probably connected with Gondi *t.a_li_*, Bhili *t.o_l.i_* ‘cow, Bhili *t.od.a~_* ‘cattle’

Nahali *t.o_t.a* ‘maize, a Naha_l clan-name’

Nahali *en:ger* ‘burning charcoal’; If direct borrowing from Hi. *a~_gra_*, en:ger is an instance of *a>e*; Mundari *en:gel*, remodeled after *sen:gel* ‘fire

Nahali *e.t.t.hi, het.t.i* ‘elephant’; Kolami *etti*, Kurku *hethi, hathi*; Mar. *hatti_*, Hi. *ha_thi_*

Nahali *ha_t.u* ‘market’; Hi. *ha_t.;* Kurku *hatti* from Hi. *hat.t.i_*

Nahali *gad.ri*, *gadha* ‘ass’ Kurku *gadri, gadari, gidari, gideri*; Mar. *gadhad.a_*; Kurku *gadar.a* ‘he-ass’, *gidir.i* ‘she-ass’; Hi. gadaha_

Nahali *ga_r.a* ‘cart’; Kurku *gar.a* ‘a native cart’; Hi. *ga_r.a_*

Nahali *gard.an* ‘neck’; Hi. *gardan*

Nahali *gora kelli* ‘male calf’; Kurku *gora* ‘male calf’

Nahali *got.hi* ‘clan’; Hi. *got.h* ‘assembly’; *goti_* ‘relation, kindred’

Nahali *ghut.ari* ‘a deer’; Kurku *ghotari, ghotar.i, gotari* ‘red antelope, deer, jungle goat; Ho *kotharie seleep* [= *kothari_ silib’*] Zide points to Santali *ghot.ret’ jel, ghot.ra jel*

Nahali *kot.ra* ‘inside’. Nid.irtan: *kot.ra* ‘inside of the anthill; Hi. Mar. *kot.ar* ‘hole in a tree’; Hi. *kot.hri_* (Mar. *kot.had.i_*) ‘small room, cell’; Hi. Mar. *kot.ha_r* ‘storehouse’

Nahali *hond.ar* ‘rat’; Sora *on(d)re_n:* ; Kui od.ri; Kuwi *or.li, orli*; Skt. *undara, undaru, unduru* ‘mouse’

Nahali *hundar* ‘to prepare (food)’; Kurku *hundar*; Gutob *kund.ar* ‘to cook’

Nahali *iphil* ‘star; Kurku *ipil*; Santali Mundari Ho *ipil*; Sakai *perlohi, peloi*, Semang *puloe, peluih*; Khmer *phlu* ‘daylight’

Nahali *irar* ‘two (Masc.), *ir* (Fem. Ntr.); *ir-jen* ‘two persons’; *i_r, i_ra_;* Tamil *iru/i_r*, Kannada *iru, ir, i_r*

Nahali *ira* ‘to cut with a sickle’; Kurku *ir/hir* ‘to cut (grass), to mow’; Santali Mundari Ho *ir* ‘to cut, reap. The disyllabic root of Nahali is remarkable, but may be correct; cf. Mundari *gira*: Santali *ger* and Ku. *terae*-: Ho *ter* ‘to throw’

Nahali *geri* ‘fishing hook’; Kurku *gir.i* ‘fish-hook, to hook a fish’; Mar. *gal.* ‘fish-hook’; N.B. Santali *ger* ‘to catch fish’, Mundari *gira_* ‘net for catching fish’ are not related to *geri*.

Nahali Kurku *kat.ham* ‘tortoise’; Kurku *katkom* ‘crab’; Santali *kakkat.a*; Skt. *karkat.a*

Nahali *kapri* in *jiki kapri* ‘eye-brow’

Nahali *kapor* ‘winnowing basket’

Nahali *karchi* ‘pitcher’; Kurku *karsi, kharsi* ‘earthen basin, large earthen pot, water-pot with a wide neck’; Mar. *kal.s’i_, kal.si_* ‘a small metal vessel’

Nahali *ka_vra* ‘crow’; Kurku *kaur.a, kaua, kauwa* ‘raven, crow’ Parji *kavr.a*; Mar. from *ka_vl.a_*

Nahali *kirsan* ‘cultivator’ Kurku *kirsan*, *kisan*; Hi. Mar. *kisa_n*; modern borrowings from Sanskrit: Nepali *kirkhi* from Skt. *kr.s.i*

Nahali *ko_go* ‘snake’

Nahali *kokhor* ‘fowl’ Gondi *kukkura* ‘painted partride’; Mundari Ho *kokor* ‘owl’; Sora *kukkur* ‘dove’

Nahali *komba* ‘cock’; Kurku *komba*, Mar. *komba_d.a_;* Konkani *kombo*

Nahali *khobo* ‘much; *khu_b* ‘very, many’; Kurku *khobo, khubo (kubo), khob (kob).* Hi. Mar. *khu_b*

Nahali *ko_l* ‘woman, wife’ (dual *ko_lhilt.el*); Kolami *ko_lama* ‘wife’; Kashmiri *kolay* ‘wife’; Burgandi dialect of Tamil *kulis* ‘wife’, Yerukala *khulis’i_* (Malar *khulsa_* ‘husband: Sikalgari *kho_l* ‘house’); Kui *kola* ‘bride, son’s (yonger brother’s) wife’

Nahali *ko_lya* ‘fuel, Naha_l clan-name’; Kurku *kolya* ‘charcoal’, with metathesis from Hi. *koyala_, koela_* > Santali *koela, kuila*, Mundari *koila*, *kuila*

Nahali *kot.t.o, kat.t.o, ko_hat.* ‘to beat’; Tam. Mal. Tel. *kot.t.u* ‘[to beat’; Mundari *kut.ao* ‘to drub, strike violently or thresh soundly with a stick’; Hi. *ku_t.na_*

Nahali *kot.t.u* ‘to pound’; Hi. *ku_t.na_* ‘to macerate, to pound, to pestle, crush, beat’; Kannad.a *kut.t.u* ‘to beat, strike, pound, bruise’

Nahali *ku_d.u* ‘bamboo door’; Kurku *kur.* ‘wall (of wattle and daub), Mar. *ku_d., kud.an* (Kolami *kud.an*); Kui *kud.u* ‘wall’

Nahali *kui* ‘water well’; Kurku *kui, kuhi,* Santali *ku~i*; Hi. *ku_a_* (*ku_i_* in Dardic). Munda word perhaps a recent borrowing from some local Aryan dialect

Nahali *khand.a* ‘shoulde; to carry on shoulder’; Kurku *khanda, kha~_do~*, Hi. *kandha_*

Nahali *kharu ka* ‘many’; Kurku *kar.u, karu* ‘herd, crowd, flock, multitude’, *karuten* ‘in crowds’, *kad. karu kurku* ‘a great multitude’ (lit. a great many people); santali *khar* ‘herd, flock’; Mundari *ker.a*,Ho. *kera* ‘buffalo’, Mundari *kir.o* ‘a buffalo calf upto to 3 years old’

kat.iya_ **buffalo** heifer (G.); kad.a buffalo (Santali); **ka_t.i**, furnace (trench)(Ta.)

Nahali *khara* ‘field’; Mar. *khal., khal.e~* ‘yard, court’ [Kurku *khara* means ‘salt, brackish’ = Hi. *kha_ra_];* cf. Nahali *kheriyan* ‘threshing floor’; Kurku *kharyan,* from Mar. *khal.iha_n*; cf. *khaliha_n, khali_ha_n,* Bihari *khariha_n*; Kurku *khari_n* from Mar. *khal.e~*
Nahali *kheda* ‘to drive a cart’ Kurku *kheda, kheda-ki* ‘to drive away’, *ke-keda, keda-k-ej* ‘to drive oxen’; Hi. *khedna_* id.

Nahali *kheri-kama* ‘to pull’; Kurku *kir.i* ‘to pull’; Kann. *ki_r.* ‘to draw or pull out, pluck up or out, uproot, pull off, rob’

Nahali *khet* ‘field’ Hi. *khet* id.; Kurku *kheti, khiti, khit.i, ket.i, kiti* ‘field; Hi. Mar. *kheti_* ‘agriculture’; cf. Skt. *ks.etra* ‘field

Nahali *khogir* 'saddle' Kurku Mundari Gutob *khogir*. Hi. Mar. *khogi_r*

Nahali *khuri* 'leg'; *khuri_*, *khud.i_* 'foot'; Mar. *khuri_* 'forepart of the hoof'; *khu_r* 'hoof, foot (of couch). The meaning 'foot' is also found in Kashmiri, Dardic, West Pahari.

Nahali *la_o* 'to burn'; Naiki *lao* 'to set fire, to put on (ear-ring), to shut (door); Santali Mundari *lo* 'to burn, scald', *lolo* 'to heat, hot, warm, Birhor *lo'* 'to burn', *lolo* 'hot, warm', Ho *lo* 'to burn, *lolo* 'hot'

Nahali *lokhand.o* 'iron'; Kurku *lo-khand.o* (*lo, loh, loha*); cf. Mar. *lokha_d.* 'iron'

kan.d. 'furnace' (Santali)

ghat.a jar, ewer (MBh.R.Sus'r.) **kod.a** (Ka.) **gargara** (MBh.) **gargari_** churn, butter-vat, a kind of water-jar (Skt.) **karaka** water-pot (MBh.R.) **bhr.n:ga_ra** water-pot, pitcher (Skt.) **gha_ghari** waterpot (S.); **gad.d.uka** small earthen pot (Skt.); **gar.uwa_** (N.); **khan.d.a** a liquor pot (Pkt.); **kalas'a** pot, water-jar (RV.) **gagra, ghagra, ghar.a** (Santali); **han.d.ha** a large earthenware jar (Santali); **ha~_d.a_** (H.); **hat.hua** (Santali); **ha~_r.ia_** cooking pot (Kharia)

Nahali *man:gar* 'crocodile'; Kurku 'alligator'; Santali 'alligator, *crocodiles palustris'* with nasalization owing to the initial nasal from Hi. *magar*

Nahali *ma_v*, *ma_w*, *ma_* 'horse' (dual *ma_v-ihlt.el*, plur. *ma_v-t.a*); Tel. *ma_vu* 'horse'; Gondi *mau*, *ma_v* 'sambar'; Note *ma* 'horse' in Tai, Ahom, Kha_mti, Laos, Sha_n; cf. Lahu (Shan states) *muan, maw* 'horse'

Nahali *men:ge*, *me_n:ge* 'tooth, jaw'

Nahali *mend.ha* 'sheep'; Kurku *mend.ha* id. From Hi. *me~d.ha_* 'ram'

Nahali *mochor* 'pestle'; Mar. *musal.;* Skt. *mus'ala, mus.ala*

Nahali *mokhne* 'elbow (knee?); Kurku Mundari Ho *muka*; Santali *moka* 'cubit; Mundari *moka* 'a measure'; Ho *mukui* 'knee'; Kurukh *mu_ka, mu~_ka_*, Kolami *movka* 'elbow', Malto *muki* 'cubit', *muke* 'knee', which are borrowings from Munda or, like the Munda words, loan-words from an older linguistic family.

Nahali *mond.a* 'heel'

Nahali *mo_t.h, mo_t.ho* 'three'. With deoicing from Tel. *mu_d.u* or Gondi *mud.u*?

Nahali *mundi* 'ring'; Kurku *mundi*, from Mar. *mudi_*. An earlier borrowing (from Pkt. *mudda_*?) in Santali *mundam*, Mundari *mudam, mundam*, Ho *mundam*

Nahali *na_lku*, *na_lo* 'four'; Kann. *na_lku, na_luku* or rather Tel. *na_lugu* (with devoicing of g)? cf. Naiki *na_luk, na_lu.*

Nahali *nan:gar* 'plough'; Kurku *nan:gar*; cf. Mar. *na~gar*.

Nahali *o_han* 'mortar'; perhaps an individual borrowing direct from Pkt. *ohala*? Skt. *ulu_khala*. Ku. has *okhli*, from Hi. *u_khli_;* Mar. *ukhl.i_;* cf. Santali *ukhur.* (Desi *ukhul*), Kharia *ukhr.i*

Nahali *oro* 'millet'; Kurku *oro* 'grain, seed'. From Mar. *varo* 'kind of grass, grain' [Not related to Santali *hor.o*, Mu. *hur.u*, Kharia *horu* 'paddy, unhusked rice', Sora *saro_* 'rice, Mon *sro~*, Khmer *sruv*.]

Nahali *o_t.ho* 'chin'. Apparently a direct borrowing from Mar. *ot.h* (cf. Hi. *o~t.h*). Kurku *ota*, id. Suggests an Indo-Aryan origina **ot.ha_*.

Nahali *ot.t.i* 'to burn (v.t.)'

Nahali *pago* 'tail'

Nahali *pakot.o* 'bone'. Apparently borrowed directly from Kolami *pakkat.e* 'rib'; Tel. *pakka*, 'side' from Indo-Aryan

Nahali *pala* 'leaf'. Mar. *pa_la_* 'leaves, tufts of leaves, foliage', Singhalese *pala_* 'greens, vegetables', Panj. *Pallhi_* 'green leaves of grass'; Skt. *pallava* 'sprout, bud'. But Santali *palha* 'leaf, get leaves', Mundari *palhao* 'sprouting of new leaves after the branch of a tree has been cut' belong to an Austro-Asiatic word-family. Kurku has *ara pala*, a combination of *ara* (santali *ar.ak* 'vegetables') and *pala* (Santali *palha*). So Mar. *pa_la_*, *pa_le_* 'leaves, foliage', *ole~ pa_le~* 'green food (grass leaves for cattle)', (*bha_ji_*)*pa_la_* 'vegetables', are possibly borrowings from Kurku. Cf. also Hi. *a_la_ pa_la_* 'leaves of different trees'. Consequently the Nahali word is most likely a reborrowing from Mar., but it may represent the old Munda word which occurs in Kurku *ara pala*.

Nahali *pend.ri* 'shin of leg'. Kurku *pendri, pindri, pandari* 'calf of the leg, leg below the knee'. Cf. Hi. *pin.d.ra_, pin.d.ri_, pe~d.uri_* 'the shin, calf of the leg'

Nahali *pet.e* 'to sit' *pet.e-wa* 'will sit. Perhaps a 'proto-Indian' root, cf. Skt. *pi_t.ha* 'chair, seat, bench' (which was an early date borrowed into Munda, cf. Kurku *pitom*), unless the primary meaning was 'platform'. Cf. Skt. *pin.d.ika* 'bench for lying on', Oriya pin.d.a_, Santali *pin.d.a* 'a raised veranda', *pin.d.ha* 'ridge, raised border between rice-fields'

Nahali *poyye* 'bird' Digaru Mishmi *mpia_*, Taraon *piya*, Kanauri *pya_*

Nahali *sadi* 'hundred', Kurku *sadi*. Cf. Pers. Hi. *sad* 'hundred', *sadi_* 'century, centenary'

Nahali *cokob* 'leaf'; Kurku *s'akom, sakom*, Santali Mundari Ho Korwa *sakam*, id.

Nahali *sato* 'seven'; cf. Hi. *sa_t*

Nahali *sona* 'gold'; Kurku *sona*, Hi. *sona_*

Nahali *tand.ur* 'rice, paddy'; cf. Mar. *ta~dul*. The absence of a final word –o suggests that it is still a foreign word in Nahali.

Nahali *t.arsya* 'kind of animal called in Mar. *tar.as'*. Kurku *tarsa* 'hyena', Mar. *taras*, id. (Skt. *taraks.u*).

Nahali *t.embriya* 'tiger'. Kurku *temriya* 'cheetah'. Tel. *tempari* 'a brave, bold, daring man'; Tamil *tempu* 'physical strength'

Nahali *t.hekri* 'forehead'. Kurku *tikri*, id. Mar. *t.ika_, t.ikla_, t.ikli_* 'mark on the forehead', Santali *t.ika, t.ikla, t.ikli*, Hi. *t.ikli_*

Nahali *ult.a* ‘to fall’; Kurku *ult.a* ‘upside down, to overtuen’; cf. Hi. *ulat.na_* ‘to be topsy-turvy, capsize’

Nahali *unt.u* ‘camel’; Kurku *u_t, u_t.o, u_nt.o*; Kherwari *u~_t.;* Hi. *u~_t.*

(Source: FBJ Kuiper, 1962, *Nahali, a comparative study*, Amsterdam, NV Noord-Hollandsche Uitgevers Maatschappij; Sudhibhushan Bhattacharya, 1957, Field-notes on Nahali, *Ind. Ling.* 17, pp. 245-258).

Southern Bushman kara ‘horns’ (dual)
Southern Bushman kara, kadi, k’ariba, kai ‘scorpion’

[7] Substantive: **swadhiti** (RV.AV.) **sathiya_** (H.) knife, dagger; sathia_, satthaka = knife (Pkt.Ka.)

catti spear, trident, dart (Ta.) *satthra_* (P.) weapon; s'astra = a weapon (G.); sastar = sword (P.) svastiyantra = a surgical instrument o a particular form (Skt.) **svadhi-hetika** = axe-armed, a soldier armed with axe; svadha_ = an axe, knife (TS.) sword (RV. 2.39.7) axe to cut wood (RV. 3.8.11) [The early forms of svastika_ could be, **‘svati-‘,** rebus: **svadhi**, ‘axe’].

[8] **mo~r.e~** = five (Santali. lex.)

Stump, stubble

mud.d.ha_ = shoulder (H.); mu_d.ha_ lump, hump, shoulder (H.); mun.d.a_ lump (Or.)(CDIAL 10189).

mo_t.abari = a pack bullock; mo_t.abariva_n.d.ru = pl. pack pedlars (Te.lex.)

mor.a_ = wicker stool (B.Or.); mod.a_ (M.); mura_ (A.); mor.ha_ (H.); mor.ha_, mur.a_ (N.)(CDIAL 10352) [Note the stool or platform on which a seated person in yogic posture is shown].

mod.avum = to twist, to turn, to bend (G.lex.)

mut.h = tree (Dm.); **mut.ha** (Gaw.); **mut.h** (Kal.Phal.); mut.hiya_, mut.ha_l, mut.hail bullock with stunted horns (Bi.); mud.ha_ stubble, stump (OA.); mura_ (A.); mun.d.ur stump (L.); mun.d.h, mud.d.h = stem; mun.d.hi_ stump of a plant (L.); mo_~t.huru = bare trunk of a tree (K.)(CDIAL 10187). **mundu_** tree-trunk (Orm.); pl. mundu_ni stump or bole of tree, maize stubble (Sh.)(CDIAL 10196). **mo_d.u** = a stump; raised or high ground; mo_t.u = a stump; a human figure (made of wood) fixed in the path of a boar to entice it (Te.lex.) mun.d.ha, mun.d.hak = stump of tree, log (Santali.lex.) mo_t.u = the stump of a tree, stubbles (Ka.); mo_t.u, mo_d.u (Te.); murad.u (Ta.); stump of a tree; that of the arm or leg (Ma.); mu_r-ai = a stump (Ta.); mu_le cattle without horns or with horns turned (Ma.)(Ka.lex.)

mut.t.u tool, instrument, sundry things; mut.ga.rn Kota economic associate with Badaga or with Kurumba (he gives tool etc.); Kota economic associate with Toda (less formal than kel. Relationship)(Ko.); mut. Things given by Kotas to Toads, including tools (To.); mut.t.u implement, tool, thing, utensils, furniture, things belonging to a house as beams (Ka.); instrument, tool (Te.)(DEDR 4937). tat.t.tumut.t.u furniture, goods and chattels, utensils, luggag (Ta.); kitchen utensils, household stuff (Ma.); tat.t.imut.t.u id. (Tu.)(DEDR 3041).

mo_d.i = the mor or common business script of the Mara_thi (Ka.); mo_d.i_, mo_d.u (M.); a running hand (Ka.)(Ka.lex.)

modi_ = a steward; a grain-dealer, a retail grocer; modi_kha_num = a granary; the commissariat department; the business of supplying corn and other provisions (G.lex.) modaliga = a chief, a headman (na_ga, mukhya)(Ka.lex.) mo_di_ = a purveyor, caterer, victualer, grocer (Te.lex.) **mudi** = a shopkeeper, a Hindu caste (Santali.lex.) mo_d.i = a turn, a caste, a style, a fashion (of speech, composition, action)(Ka.M.Te.Ma.) **mo_ti** = a corn handler; a petty grocer (Ka.); mo_di_ (M.H.); mo_ti_kha_ne = the commissariat department of an army (Ka.); **mo_di_** (M.H.); a granary (Ka.lex.)

 h182A  h18/2B 

4306Tablet in bas-relief h182a Pict-107: Drummer and a tiger. h182b Five svastika signs alternating right- and left-handed.

mo~r.eko, mo~r.eko turuiko = certain Santal godlets so named (Santali.lex.) [Note the depiction of six (**turui**) persons with twigs on their heads and with pigtails].

mon.d. = the tail of a serpent; jambr.o mon.d. = the tail of the rock snake (Santali.lex.) [The glyph is ligatured to the composite animal in lieu of a tail].

mahri, mudi = a shopkeeper, a Hindu caste (Santali) maru hor.o = a brave man (Mundari.lex)

mahra, mahara = a small insect found in water (Mundari) **maru** = adj. Of reptiles, small mammals, and fish (not crabs, for which ora is used)(Mundari) sen:gel marmar = a species of centipede, scolapendra versicolor; a poisonous centipede, verhy common; the sting is painful like that of a scorpion (Santali.Mundari.Ho.); kar.kommarmar = a scorpion (Mundari.lex.)

marmar = marble (Mundari.H.)

mahra, mahara = a hindu caste, the goalla or cow-keeping caste (Mundari)

martul, martol = a sledge-hammer as used to break rocks or stones (Mundari.Santali); martul (fr. French marteau)(H.)(Mundari.lex.)

[9] Alternative: Substantive: *me~rhe~t* 'iron'; *me~rhe~t icena* 'the iron is rusty'; *ispat me~rhe~t* 'steel', *dul me~rhe~t* 'cast iron'; *me~rhe~t khan.d.a* 'iron implements' (Santali) *med.* (Ho.)(Santali.lex.Bodding) mer.ed, mr.ed, mrd iron; enga mer.ed soft iron; sand.i mer.ed hard iron; ispa_t mer.ed steel; dul mer.ed cast iron; i mer.ed rusty iron, also the iron of which weights are cast; bicamer.ed iron extracted from stone ore; balimer.ed iron extracted from sand ore (Mu.lex.)

mer.hao = to entwine itself, wind round, wrap around, roll up (Santali.lex.) [Note the endless knot motif].

[10] **Upside down, birth**

put.t.ha = upside down, having the face downward (P.lex.)
put.t.u = birth, origin; progeny (Ka.)

Depicting kamar sa_la_ (blacksmith's workshop) or, 'saloi kamar' = a kind of blacksmith (perhaps, knife grinder) [**sala** = afterbirth, kamar]

[Note the glyph of a woman with spread thighs and something (placenta? menses? dead foetus?) emanating from the womb].

sa_l afterbirth (N.); cause of pain (G.); dead foetus in womb (M.); hal = afterbirth (K.); s'alya = anything lodged in the body and causing pain (applied to dead foetus)(Sus'r.); salla = thorn in body (Pkt.)(CDIAL 12332).

Some glyphs on Text 4304, rebus:

Alternative 1: **kut.t.a_r, kut.a_r** = corn without grains (Go.); kut.t.a_ = chaff (Kur.)(DEDR 1665). kuta = jowari stubble (Go.); gut.t.u = stubble of paddy (Pe.)(DEDR 1676). *khut.t.a, *khun.t.a (CDIAL 3893, 3746). gundli = a cultivated millet, panicum miliare (Santali.lex.) Rebus: **kut.ha_ru** = armourer, writer (Skt.)

Alternative 2: **ko_li** a stubble of jo_l.a (Ka.); **ko_le** = a stub or stump of corn (Te.)(DEDR 2242). kol, kolhe = an aboriginal tribe of iron smelters speaking a language akin to that of the Santals (Santali.lex.) **kol** 'metal' (Ta.)

Pictorial motif on side b of tablet h180: a woman with legs spread out, accent on pubes: **kut.hi**; rebus: **kut.hi** = a furnace for smelting iron ore].

[11] **buru** = a mountain; buru kunami = full moon; maran: buru = Paresnath, the highest mountain in the Santal country; **buru d.an.d.om** = a spur or shoulder of a mountain (Santali.lex.)

buruan:, bur.uan: = brimless, toothless, without edge (Santali.lex.)

kambru buru, kamru buru, kambru bon:ga, kamru bon:ga = one of the lesser deities reverenced by Santals, the godlet of medicine (Santali.lex.) buru = a spirit, an objet of worship; maran: buru = the chief of the burus, or bon:gas; maran: buru or mount Pareshnath is often confounded with the Maran: buru of the Santal traditions and worship; buru = a religious festival and fair of the semi-hinduised bhui~yas; gan.d.e buru is held in December in village named Gan.d.e in Hazaribagh district; lalgar.h buru is held at Lalgar.h in Santal Parganas (Santali.lex.)

[12] Alternative 2. Ring-stones around a pillar with coping stones in a building-structure as at Dholavira?

kunda = a pillar of bricks etc. (Ka.Te.Tu.)(Ka.lex.) [Note the tablets in bas-relief showing a stack of ring-stones around a pillar].

kunda = a post or pillar (Te.lex.) khun.t.i = pillar (Santali.lex.) kundi, kundiyamu = a sort of rim of stone placed upon a mortar to prevent spilling of rice (Te.lex.) **kundau dhiri** = a hewn stone; kundau murhut = a graven image (Santali.lex.) kundanamu = setting precious stones with fine gold (Te.lex.)

kundau turner's lathe.

bela_ [Dh. Des. beli_ = Skt. stambha a pillar, a support; cf. Arabic va_li_ a guardian] a giver of happiness; a destroyer of distress; a helper; a patron; a friend (G.lex.)

Dh. Des. **beli_** = Skt. stambha a pillar, a support; cf. Arabic va_li_ a guardian] a helper; a patron; a friend (G.lex.)

beldar = a semi-hinduized caste of earth-diggers, a navy (Santali.lex.) **belda_r** = a stone digger; a quarry-worker; a sapper, a miner; a labourer; a porter (G.lex.); bel = level; bel ot = level ground (Santali.lex.)

bali = iron ore, iron stone sand; the Kol iron smelters wash the ore from the sand in the river bed (Santali.lex.)

bali_varda = a bull (Skt.lex.) **bel** [Hem. Des. **ba-i-li_** fr. Skt. bali_vard] a bull; a bullock; an ox (G.lex.)